

Service Manual

ORDER NO.
RRV1 377

FM/AM DIGITAL SYNTHESIZER TUNER

F-C5RDS

FM/AM TUNER

F-C3

- Refer to the service manual RRV1108 for F-C5RDS/HE and RRV1049 for F-C3/HE.

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model		Power Requirement	The voltage can be converted by the following method.
	F-C5RDS	F-C3		
HE8	O	O	AC220-230V	AC240V, *
HEWZ18	O	O	AC220-230V	AC240V, *

* : Alter the wiring of the Power-supply block at the primary winding of Power-transformer referring to the "Line Voltage Selection" described in Service Manual.

1. CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560 Ω	\rightarrow	56 \times 10 ¹	\rightarrow	561	RD1/8PM561J
47k Ω	\rightarrow	47 \times 10 ³	\rightarrow	473	RD1/4PS473J
0.5 Ω	\rightarrow	0R5			RN2H0R5K
1 Ω	\rightarrow	010			RS1P010K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω	\rightarrow	562 \times 10 ¹	\rightarrow	5621	RN1/4PC5621F
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1. CONTRAST OF F-C5RDS/HE8 AND F-C5RDS/HE

F-C5RDS/HE8 and F-C5RDS/HE have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		F-C5RDS/HE	F-C5RDS/HE8	
Δ	Tuner assy	AWE7007	AWE7006 *	
	Tuner assy	AWZ7272	AWZ7271 *	
	Power assy	AWZ7275	AWZ7274 *	
	Rear panel	ANC7095	ANC7297	
	Ferrite core	Not used	ATX7001 *	
NSP	Screw	Not used	ABA1047 *	
	Plate (GND)	Not used	ANK1120 *	
	FM antenna	ADH1005	ADH1002	

Note : Parts marked * are the same as those of F-C5RDS/HEWZI which is shown with F-C5RDS in the service manual RRV1108.

2. CONTRAST OF F-C5RDS/HEWZI8 AND F-C5RDS/HEWZI

Although F-C5RDS/HEWZI8 and F-C5RDS/HEWZI are different in model name, they consist of the same components.

P.S

F-C5RDS/HEWZI8 is made a design change like the following:

Mark	Description	OLD	NEW
Δ	Ferrite core	ATX7001	Not used
	Ferrite core	Not used	ATX7001

Power assy (AWZ7274) is made a design change like the following:

Mark	Description	OLD	NEW
Δ	C601	ACG1002 (0.01 μ F/400V)	ACG7020 (0.01 μ F/250V)

Tuner assy (AWZ7271) is made a design change like the following:

Mark	Description	OLD	NEW
Δ	C559	CKDYB102K50	Not used
	C559	Not used	CKDYB102K50

3. CONTRAST OF F-C3/HE8 AND F-C3/HE

F-C3/HE8 and F-C3/HE have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		F-C3/HE	F-C3/HE8	
NSP	Tuner assy	AWE7002	AWE7019	
	Main assy	AWZ7048	AWZ8214 *	
	Rear panel	ANC7058	ANC7296	
	Screw	Not used	ABA1047	
	Spacer	AEC1236	Not used	
	FM antenna	ADH1005	ADH1002	

Note * :Refer to 2. PCB PARTS LIST and 3. SCHEMATIC AND PCB DIAGRAMS.

4. CONTRAST OF F-C3/HEWZI8 AND F-C3/HEWZI

F-C3/HEWZI8 and F-C3/HEWZI have the same construction except for the following:

Mark	Symbol & Description	F-C3/HEWZI	F-C3/HEWZI8
△	Fuse (FU2, T2A/250V)	Not used	AEK – 511 *

Note * :Refer to 3. SCHEMATIC AND PCB DIAGRAMS.

P.S

Main assy (AWZ7049) is made a design change like the following:

Mark	Description	OLD	NEW
△	C309	ACG1002 (0.01μF/400V)	ACG7020 (0.01μF/250V)
	L301	ATF 1135	Not used
△	L301	Not used	ATF1135
	C1	CKDYX103M25	Not used
△	C1	Not used	CKDYX103M25

2. PCB PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The △ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω → 56 × 10¹ → 561 RD1/8PM561J
47kΩ → 47 × 10³ → 473 RD1/4PS473J
0.5Ω → 0R5 RN2H0R5K
1Ω → 010 RS1P010K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ → 562 × 10¹ → 5621 RN1/4PC5621F

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
MAIN ASSY (AWZ8214)			Q305, Q401		2SC1740S
SEMICONDUCTORS			Q111		2SC1740SLN
			Q101, Q102		2SC2668
			Q304		2SD438
			Q110		2SK246
IC103	AN7470P		Q104, Q106, Q108		XDA124ES
IC102	LA1265S		Q116, Q302		XDA143ES
IC101	LM7001J		Q105, Q107, Q109, Q122, Q303		XDC143ES
IC301	NJM7812AS		Q306		XDC143ES
Q301	2SA1529				
Q103, Q112 – Q115, Q117 – Q119	2SC1740S				

Mark No.	Description	Parts No.
	D102 – D108, D113, D114, D306	1SS252
	D401, D402	1SS252
	D101	1SV156
	D112, D305, D403	RD6.2ESB
	D301 – D304	S5566

COILS AND FILTERS

L102	ATE – 079
F103	ATF – 107
F101, F102	ATF – 119
F104	ATF – 208
F105	ATF1088

△ L301 (180μH, AC250V)	ATF1135
L101	LAU2R2J
L103, L104, L106	LAU2R2K
L107	LAU330J

TRANSFORMERS

△ T301 (6.5VA)	ATT1226
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CAPACITORS

△ C303 (0.047μF, 25V)	ACG – 009
C309 (10000PF, AC250V)	ACG7020
C304	ACH1246
C109, C117, C118	CCDCH150J50
C187	CCPUSL270J50

C115	CCPUSL470J50
C138	CEANP4R7M50
C133	CEAS010M50
C127	CEAS100M50
C128, C137, C301	CEAS101M16

C143	CEAS1R5M50
C189	CEAS220M25
C302	CEAS222M35
C126, C151, C152	CEAS2R2M50
C111	CEAS330M16

C142	CEAS3R3M50
C135, C150, C305, C306	CEAS470M10
C123, C140	CEAS4R7M50
C144	CEASR22M50
C308	CEHAQ330M16

C112	CFTXA224J50
C105, C107	CKDYB103K50
C139	CKDYB122K50
C124	CKDYB222K50
C155, C156	CKDYB332K50

△ C132	CKDYF103Z50
C122, C130, C131, C4	CKDYF223Z50
C1	CKDYX103M25
C110, C125, C146	CKDYX473M25
C185, C307, C402	CKPUYB101K50

C101, C102, C186	CKPUYB102K50
C147	CKPUYB121K50
C134	CKPUYB331K50
C184	CKPUYF223Z25
C108	CKPUYF473Z16

Mark No.	Description	Parts No.
	C103, C104, C106, C113, C114	CKPUYY103M16
	C116, C129, C136, C145	CKPUYY103M16
	C148, C149	CQMA102J50
	C141	CQPA471J100

RESISTORS

R117		RD1/2PM681J
VR101 (4.7kΩ)		ACP1042
VR102 (10kΩ)		ACP1043
VR103 (22kΩ)		ACP1044
Other Resistors		RD1/8PM□□□J

OTHERS

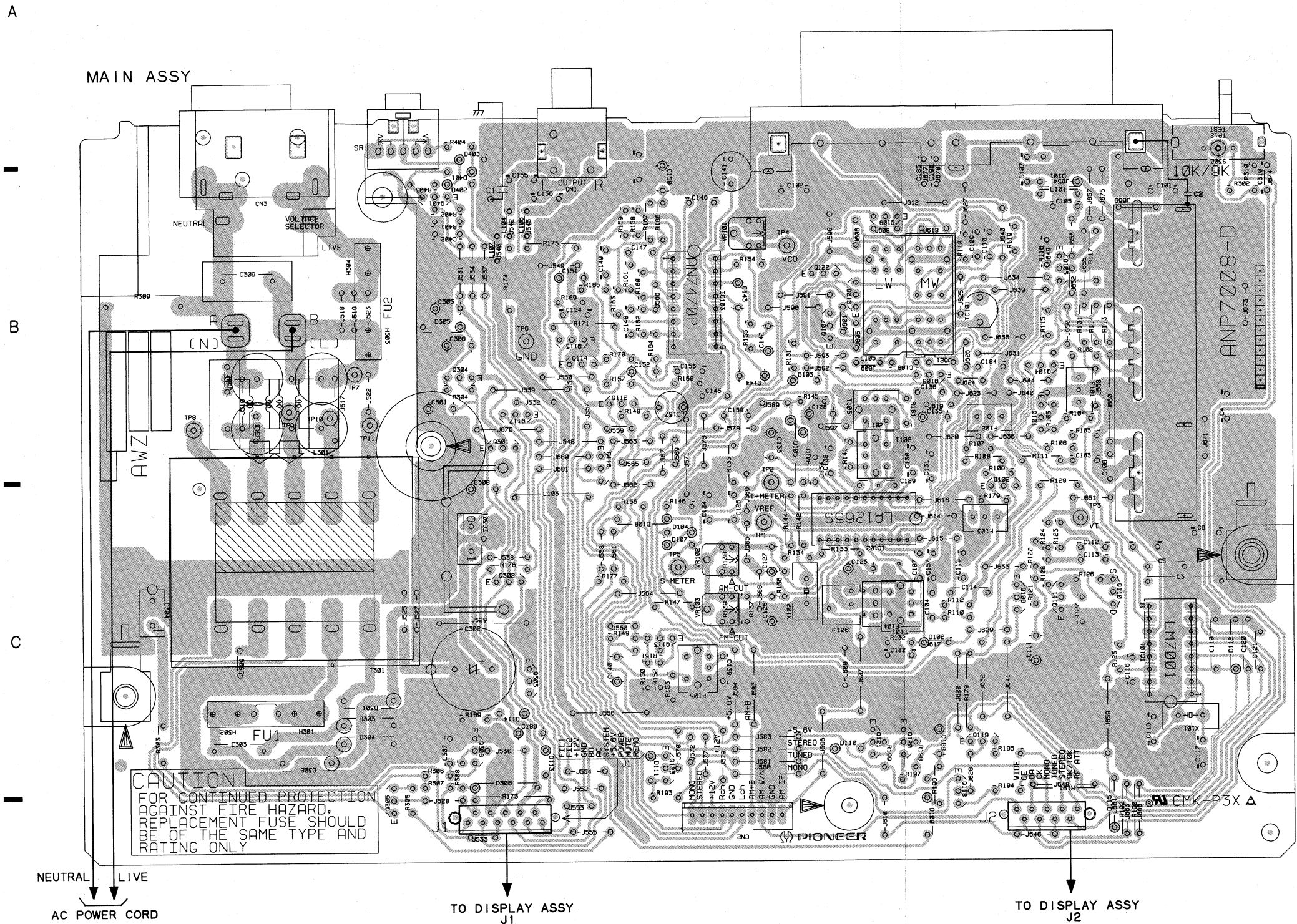
	SCREW	ABA1012
	ANTENNA TERMINAL 2 – P	AKA1012
CN1	PIN JACK(2P)	AKB1146
△ CN8220	JACK	AKN – 209
CN3	AC SOCKET 1 – P	AKP1034

H301 – H304	FUSE CLIP	AKR1003
	CABLE HOLDER	AKT1007
	CABLE HOLDER	AKT1023
	HEAT SINK M	ANH – 697
X101	CRYSTAL RESONATOR	ASS1042
X102	CERAMIC RESONATOR	ATF1027
	AM RF TUNING BLOCK	AXX1026
	4 SERIAL F.E. MODULE ASSY	AXQ1004

Note: 4 serial F.E. module assy has no servise part.

3. SCHEMATIC AND PCB DIAGRAMS

● This diagram is viewed from the mounted parts side.

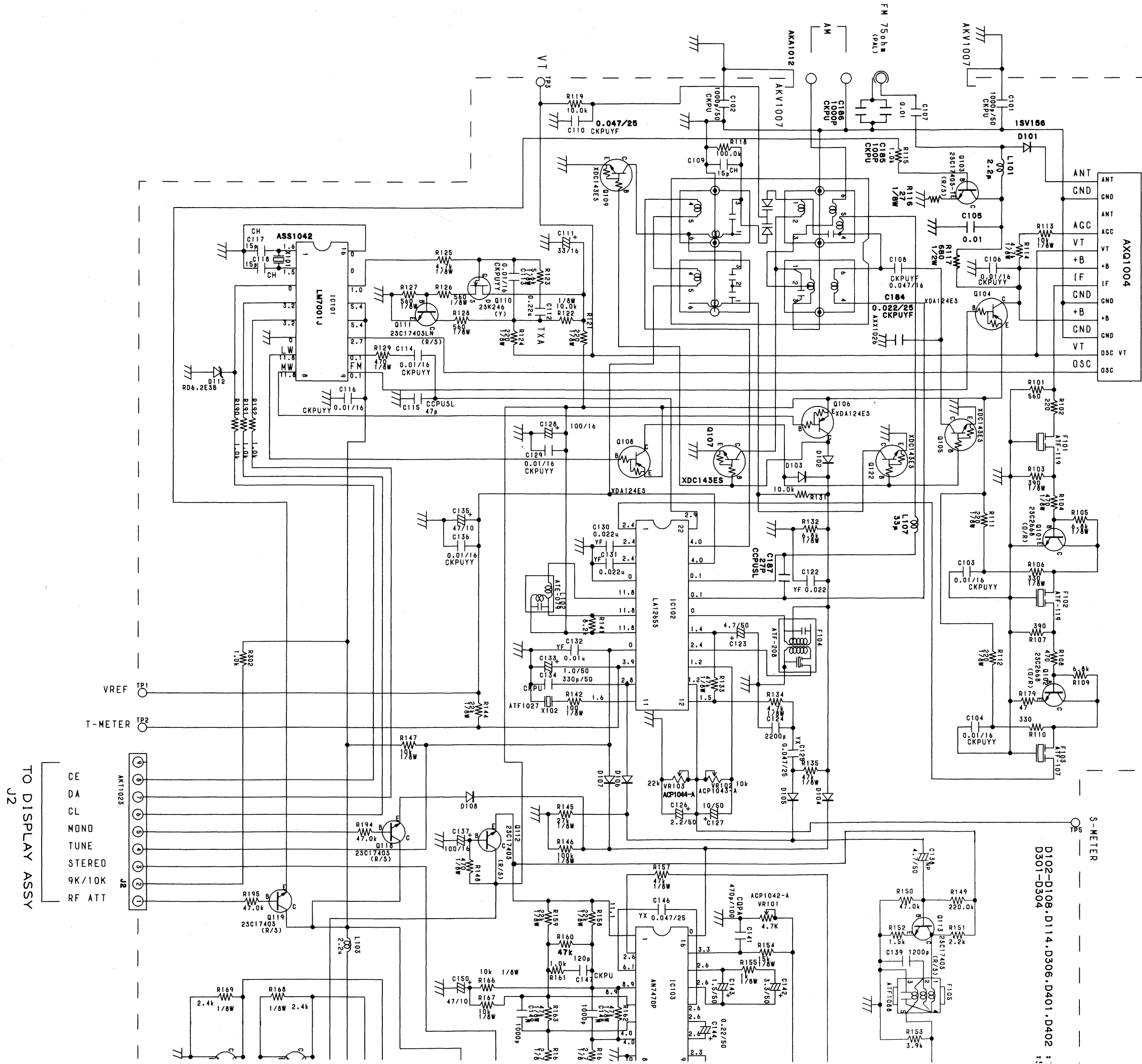


NOTE FOR PCB DIAGRAMS:

- 1. Part numbers in PCB diagrams match those in the schematic diagrams.
- 2. A comparison between the main parts of PCB and schematic diagrams is shown below.

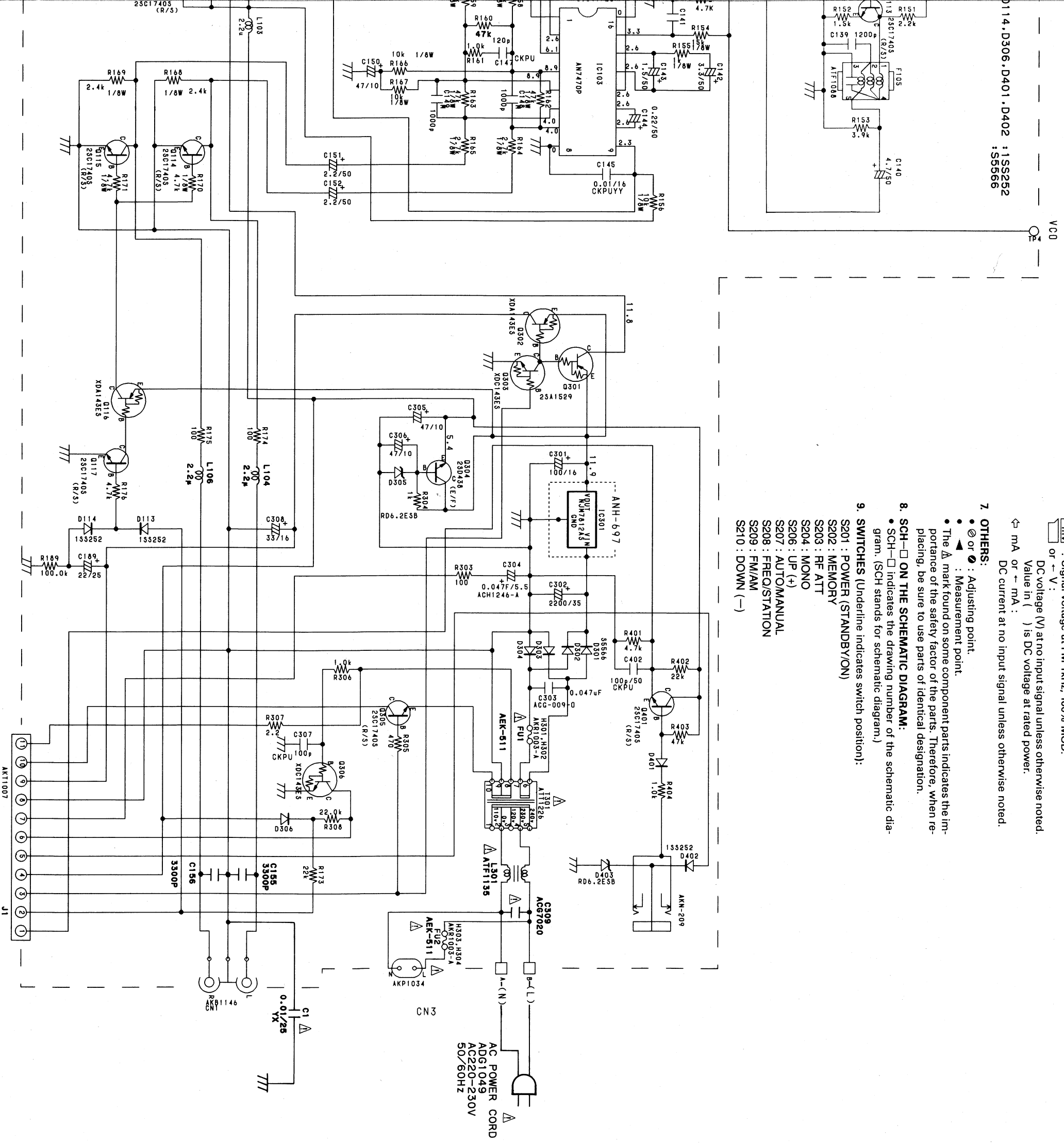
Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
 Q504	 Q504	Transistor
 D203	 D203	Diode
 C513	 C513	Capacitor (Polarized)

- 3. The transistor terminal marked with E or shows the emitter.
- 4. The diode terminal marked with or shows cathode side.
- 5. The capacitor terminal marked with or shows negative terminal.
- 6. The parts mounted on each PCB include all necessary parts for several destinations. For further information for respective destinations, be sure to check with the schematic diagram.



NOTE FOR SCHEMATIC DIAGRAMS (Type 3A)

- When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".
- Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.
- RESISTORS:**
Unit: k:K Ω , M:M Ω , or Ω unless otherwise noted.
Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
Tolerance: (F): $\pm 1\%$, (G): $\pm 2\%$, (K): $\pm 10\%$, (M): $\pm 20\%$ or $\pm 5\%$ unless otherwise noted.
- CAPACITORS:**
Unit: p:pF or μ F unless otherwise noted.
Ratings: capacitor (μ F)/voltage (V) unless otherwise noted.
Rated voltage: 50V except for electrolytic capacitors.
- COILS:**
Unit: m:mH or μ H unless otherwise noted.
- VOLTAGE AND CURRENT:**
 : Signal voltage at FM 1kHz, 100% MOD.
or \rightarrow V :
DC voltage (V) at no input signal unless otherwise noted.
Value in () is DC voltage at rated power.
 \leftarrow mA or \rightarrow mA :
DC current at no input signal unless otherwise noted.
- OTHERS:**
 or : Adjusting point.
 : Measurement point.
The Δ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
- SCH-☐ ON THE SCHEMATIC DIAGRAM:**
 SCH-☐ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
- SWITCHES** (Underline indicates switch position):
S201 : POWER (STANDBY/ON)
S202 : MEMORY
S203 : RF ATT
S204 : MONO
S206 : UP (+)
S207 : AUTO/MANUAL
S208 : FREQ/STATION
S209 : FM/AM
S210 : DOWN (-)

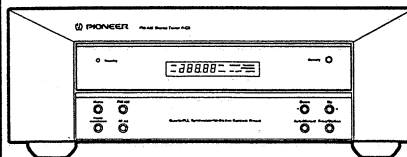


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Service Manual



ORDER NO.
RRV1049

FM/AM TUNER F-C3

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	The voltage can be converted by the following method.
	F-C3		
KU	○	AC120V	—
HE	○	AC220—230V	AC240V, *
HB	○	AC240V	AC220—230V, *
HEWZI	○	AC220—230V	AC240V, *

* : Alter the wiring of the Power-supply block at the primary winding of Power-transformer referring to the "Line Voltage Selection" described in Service Manual.

• For HEWZI and HB types, refer to page 25.

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1. SAFETY INFORMATION



This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.



NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols  (fast operating fuse) and/or  (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible  (fusible de type rapide) et/ou  (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

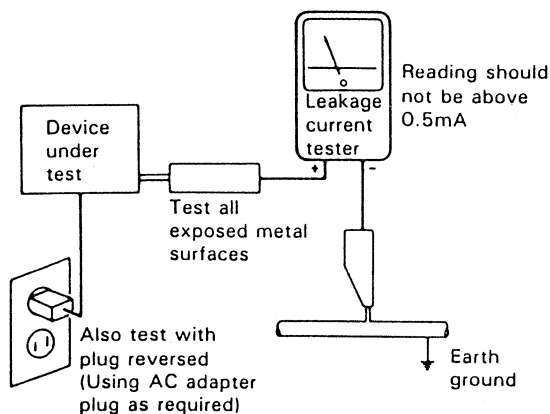
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a Δ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

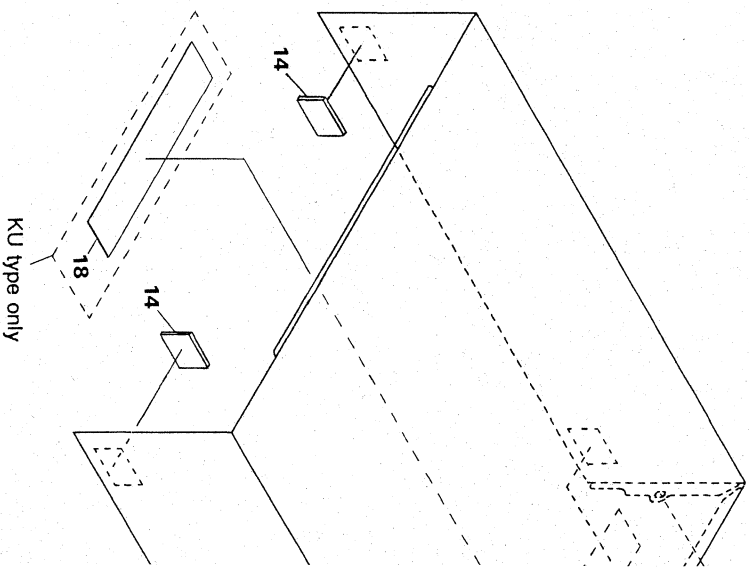
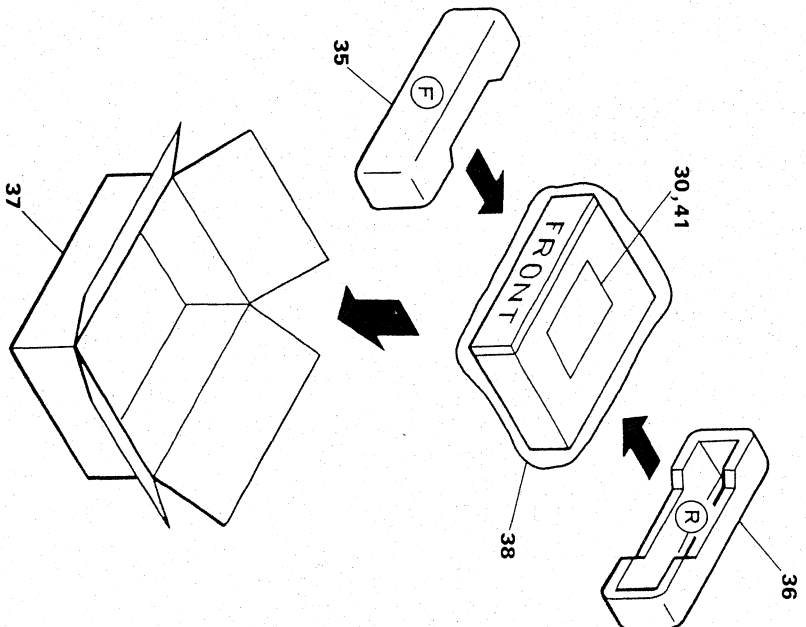
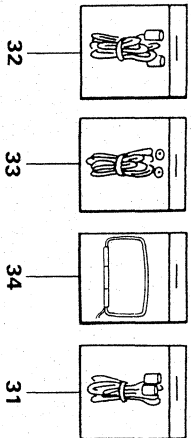
2. EXPLODED VIEWS, PACKING AND PARTS LIST

Exploded View

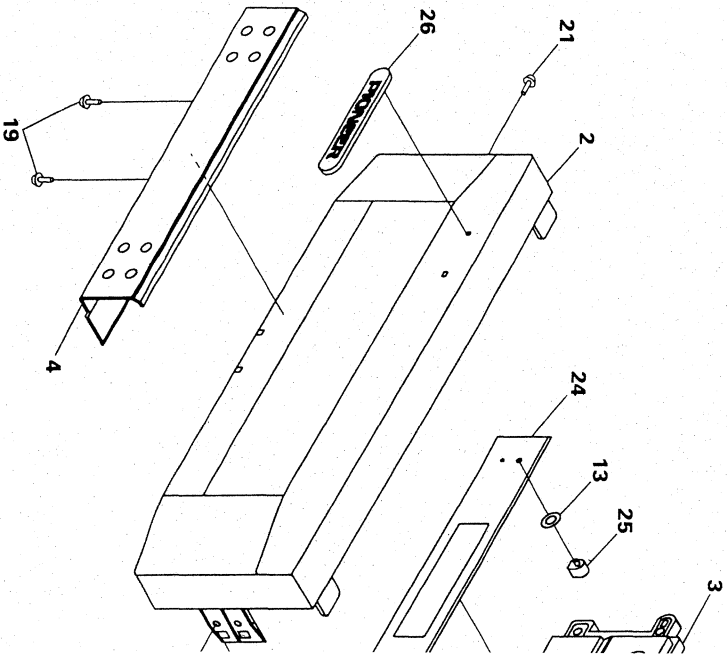
- NOTES:
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
 - The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
 - Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
 - Parts List (FOR F—C3/KU and HE)

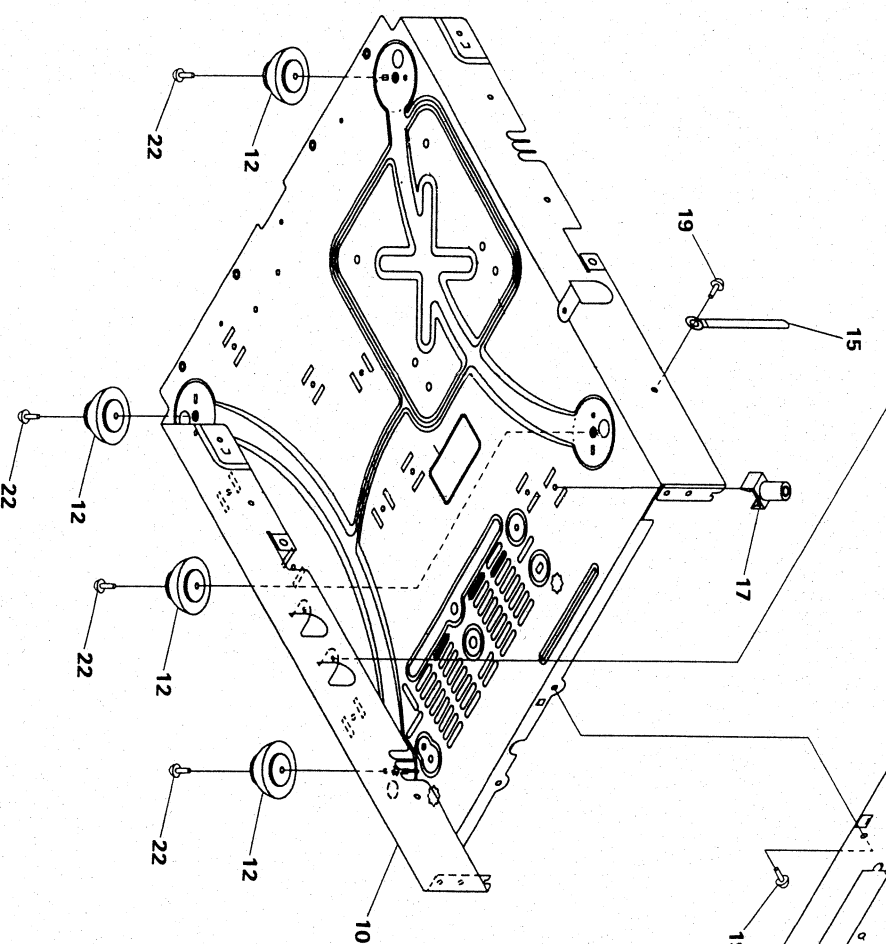
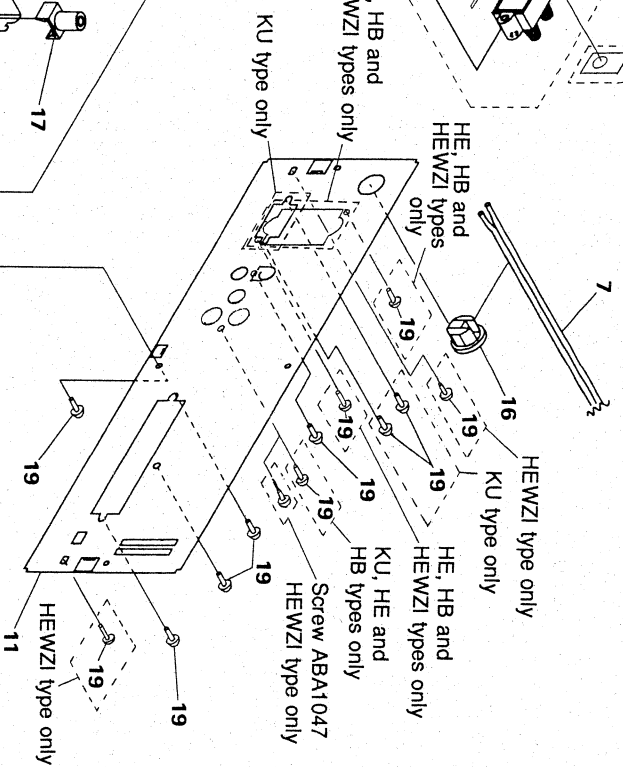
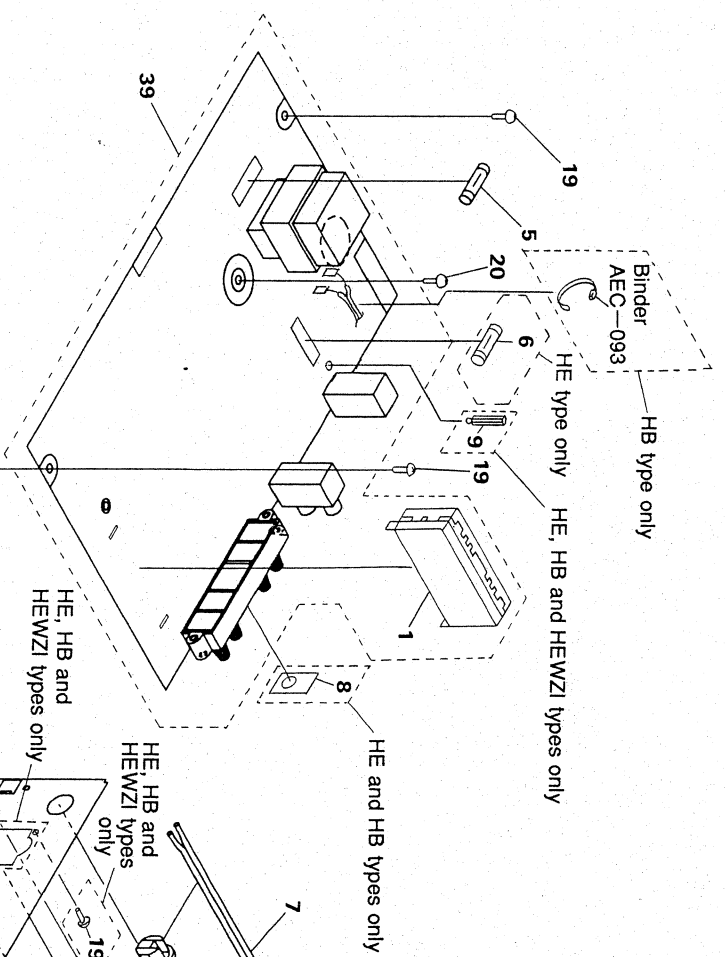
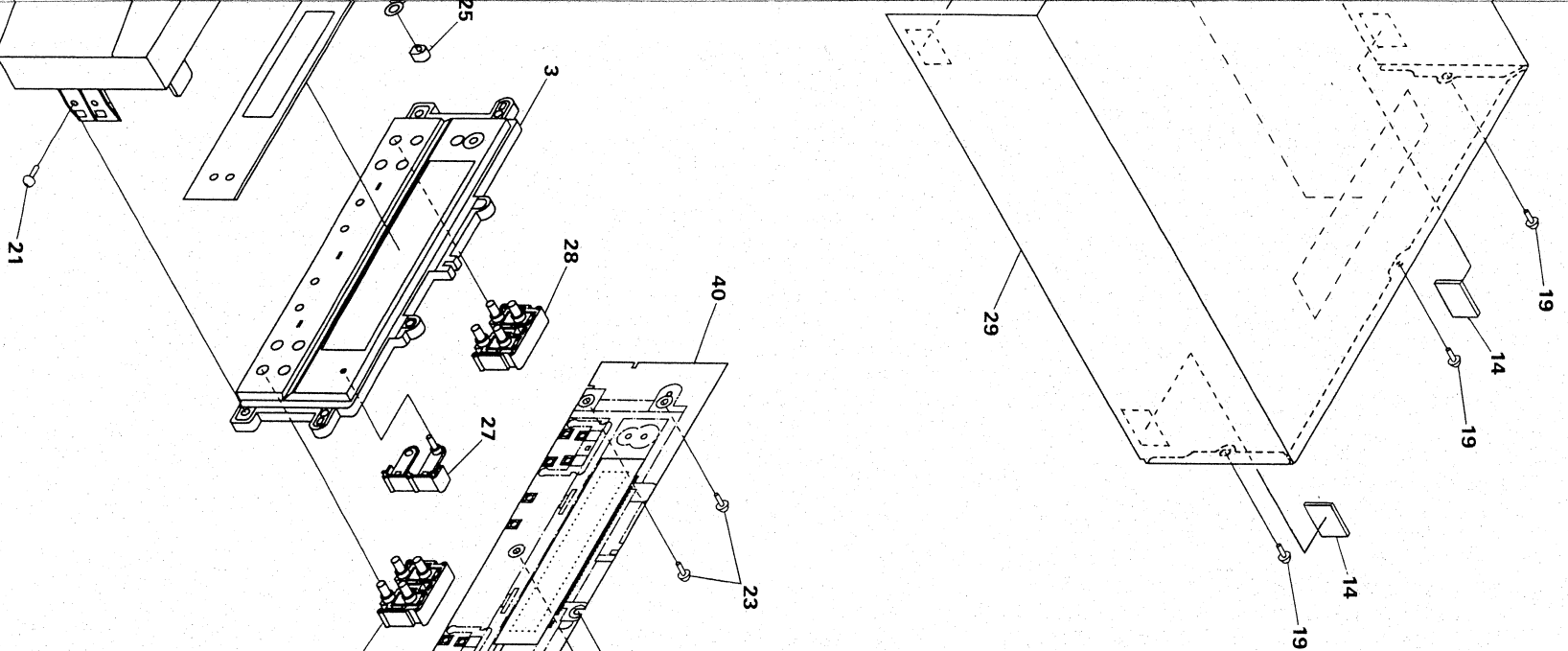
Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
1	3—SERIAL FEMODULE ASSEMBLY AXQ1003		36	R.PAD	AHA7011
2	FRONT PANEL (For KU type)	AMB7079	37	PACKING CASE (For KU type)	AHD7015
2	FRONT PANEL (For HE type)	AMB7027	37	PACKING CASE (For HE type)	AHD7014
3	SUB PANEL (For KU type)	AMB7073	38	PACKING SHEET	AHG1093
3	SUB PANEL (For HE type)	AMB7029	39	MAIN ASSEMBLY (For KU type)	AWZ7050
4	FRONT PANEL (AL)	ANB7001	39	MAIN ASSEMBLY (For HE type)	AWZ7048
5	FU1 (500mA/125V) (For KU type)	AEK -136	40	DISPLAY ASSEMBLY (For KU type)	AWZ7043
5	FU1 (1400mA/250V) (For HE type)	AEK -504	40	DISPLAY ASSEMBLY (For HE type)	AWZ7041
6	FU2 (12A/250V) (HE type only)	AEK -511	41	SUB OPERATING INSTRUCTIONS	ARH7003
7	AC POWER CORD (For KU type)	ADG1058		(English/German/French/Italian/ Swedish/Spanish/Dutch/Portuguese)	
7	AC POWER CORD (For HE type)	ADG1049		(For HE type)	
NSP	SPACER (HE type only)	AEC1236			
NSP	PCB POST (HE type only)	DEC1390			
NSP	CHASSIS	ANA7006			
NSP	REAR PANEL (For KU type)	ANC7060			
11	REAR PANEL (For HE type)	ANC7058			
11	REAR PANEL (For HE type)	ANC7058			
12	INSULATOR	PNW2363			
13	WASHER	ABE7001			
14	CUSHION RUBBER	ABE7004			
15	BINDER	AEC -826			
16	CORD STOPPER (For KU type)	AEP -113			
16	CORD STOPPER (For HE type)	AEC -882			
17	PCB MOLD	AMR1525			
18	65 LABEL (KU type only)	ORW1069			
19	SCREW (STEEL)	ABA1006			
20	SCREW	ABA1018			
21	SCREW	BBZ30P080FZK			
22	SCREW	BBZ30P100FZK			
23	SCREW	BPZ26P080FMC			
24	DISPLAY PANEL	AAK7059			
25	LED LENS	PNW2019			
26	NAME PLATE (AL)	RAN1013			
27	BUTTON	AAD7015			
28	BUTTON	RAC1859			
29	BONNET	ANE7010			
30	OPERATING INSTRUCTIONS	ARB7005			
30	(English) (For KU type)				
30	OPERATING INSTRUCTIONS	ARE7010			
30	(English/German/French/Italian/ Swedish/Spanish/Dutch/ Portuguese) (For HE type)				
31	PLUG CORD	ADE -052			
32	CORD WITH PLUG	ADE -085			
33	FM ANTENNA	ADH1005			
34	LOOP ANTENNA	ATB1006			
35	F.PAD	AHA7010			

Packing



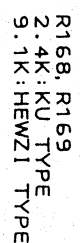
KU type only





NOTE : Screws adjacent to ▼ mark on product are used for disassembly.

3.1 MAIN ASSY (For KU and HEWZI types)



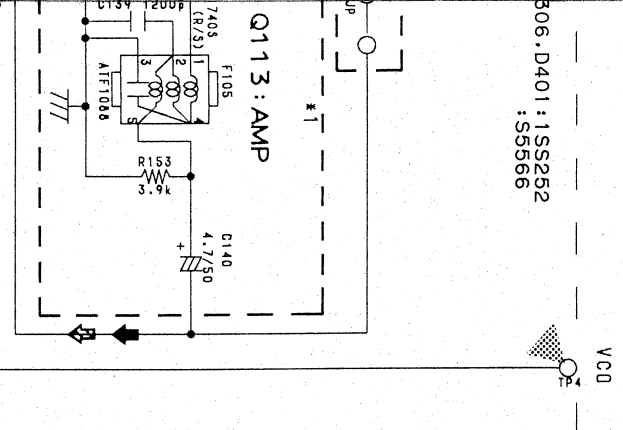
NOTE FOR SCHEMATIC DIAGRAMS (Type 3A)

- When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".
- Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.
- RESISTORS:**
Unit: k:K Ω , M:M Ω , or Ω unless otherwise noted.
Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
Tolerance: (F): $\pm 1\%$, (G): $\pm 2\%$, (K): $\pm 10\%$, (M): $\pm 20\%$ or $\pm 5\%$ unless otherwise noted.
- CAPACITORS:**
Unit: p:pF or μ F unless otherwise noted.
Ratings: capacitor (μ F)/ voltage (V) unless otherwise noted.
Rated voltage: 50V except for electrolytic capacitors.
- COILS:**
Unit: m:mH or μ H unless otherwise noted.
- VOLTAGE AND CURRENT:**
[mV] : Signal voltage at FM 1kHz, 100% MOD.
or - V :
DC voltage (V) at no input signal unless otherwise noted.
Value in () is DC voltage at rated power.
mA or - mA :
DC current at no input signal unless otherwise noted.
- OTHERS:**
• \odot or \bullet : Adjusting point.
• \blacktriangle : Measurement point.
• The Δ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
- SCH- \square ON THE SCHEMATIC DIAGRAM:**
• SCH- \square indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
- SWITCHES** (Underline indicates switch position):
S201 : POWER (STANDBY/ON)
S202 : MEMORY
S203 : RF ATT
S204 : MONO
S206 : UP (+)
S207 : AUTO/MANUAL
S208 : FREQ/STATION
S209 : FM/AM
S210 : DOWN (-)

SCH-1

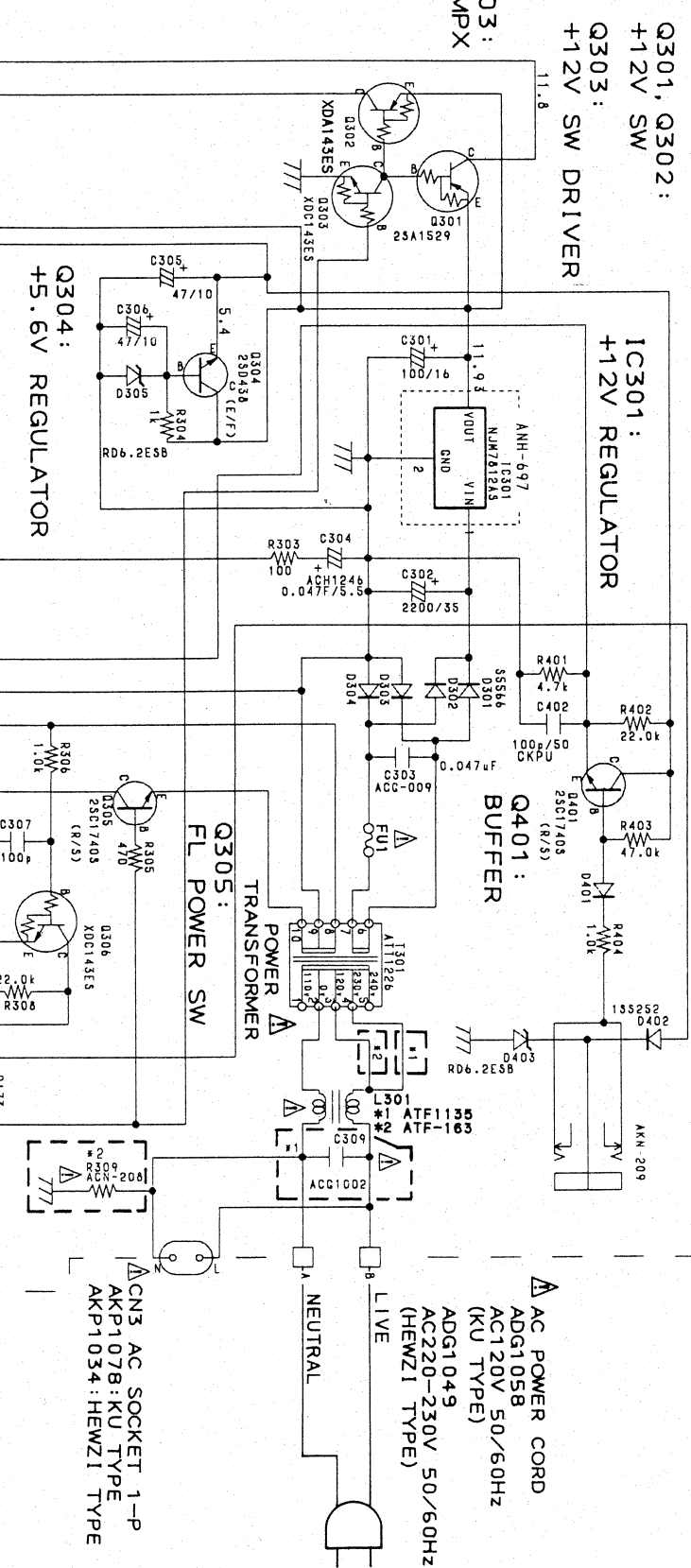
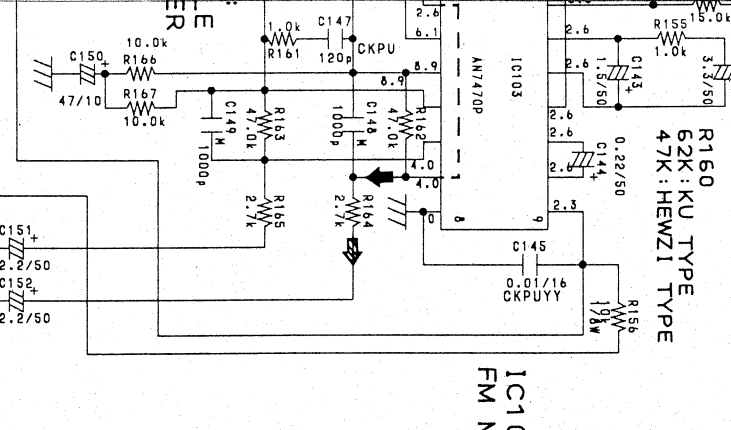
➡: FM Signal route
➡: AM Signal route

[] : HEWZ1 TYPE ONLY
[] : KU TYPE ONLY



- When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".
- Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.
- RESISTORS:**
Unit: k:K Ω , M:M Ω , or Ω unless otherwise noted.
Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
Tolerance: (F): $\pm 1\%$, (G): $\pm 2\%$, (K): $\pm 10\%$, (M): $\pm 20\%$ or $\pm 5\%$ unless otherwise noted.
- CAPACITORS:**
Unit: p:pF or μ F unless otherwise noted.
Ratings: capacitor (μ F)/ voltage (V) unless otherwise noted.
Rated voltage: 50V except for electrolytic capacitors.
- COILS:**
Unit: m:mH or μ H unless otherwise noted.
- VOLTAGE AND CURRENT:**
[mV] : Signal voltage at FM 1kHz, 100% MOD.
or - V :
DC voltage (V) at no input signal unless otherwise noted.
Value in () is DC voltage at rated power.
mA or - mA :
DC current at no input signal unless otherwise noted.
- OTHERS:**
• \odot or \bullet : Adjusting point.
• \blacktriangle : Measurement point.
• The Δ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
- SCH- \square ON THE SCHEMATIC DIAGRAM:**
• SCH- \square indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
- SWITCHES** (Underline indicates switch position):
S201 : POWER (STANDBY/ON)
S202 : MEMORY
S203 : RF ATT
S204 : MONO
S206 : UP (+)
S207 : AUTO/MANUAL
S208 : FREQ/STATION
S209 : FM/AM
S210 : DOWN (-)

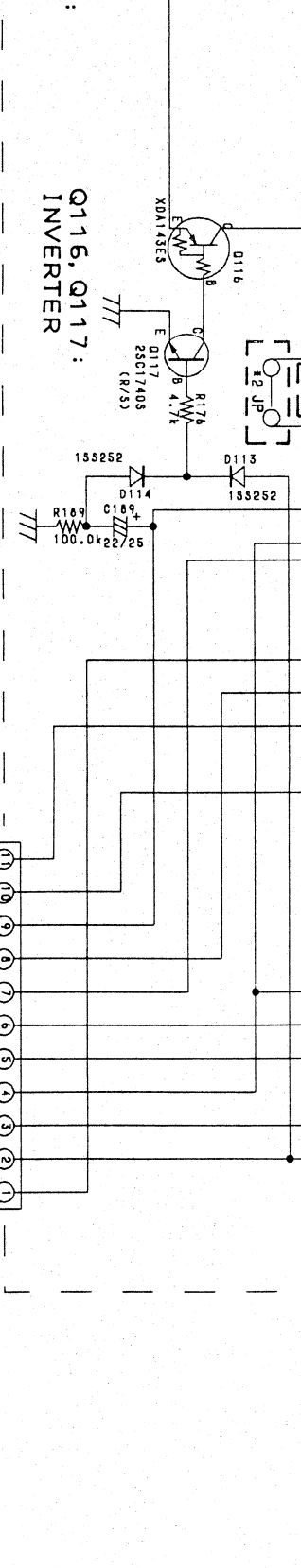
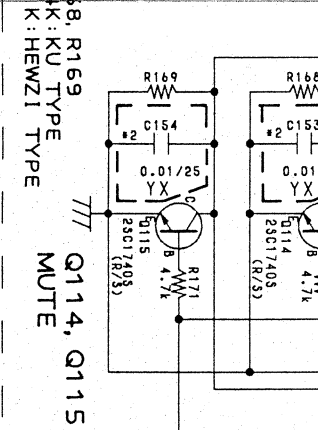
FU1
AEK-136: KU TYPE
AEK-504: HEWZ1 TYPE



Q306:
AC WAVEFORMER

AC POWER CORD
ADG1058
AC120V 50/60Hz
(KU TYPE)
ADG1049
AC220-230V 50/60Hz
(HEWZ1 TYPE)

ACN3 AC SOCKET 1-P
AKP1078: KU TYPE
AKP1034: HEWZ1 TYPE



FIL1
FIL2
+12V
GND
BU
AC
SYSTEM
+5.6V
POWER
MUTE
REMO

TO DISPLAY ASSY
J1 (-SCH-3)

MAIN ASSY
(KU, HEWZ)

SCH-1

MAIN ASSY (For KU and HEWZI types)

This PCB connection diagram is viewed from the parts mounted side.

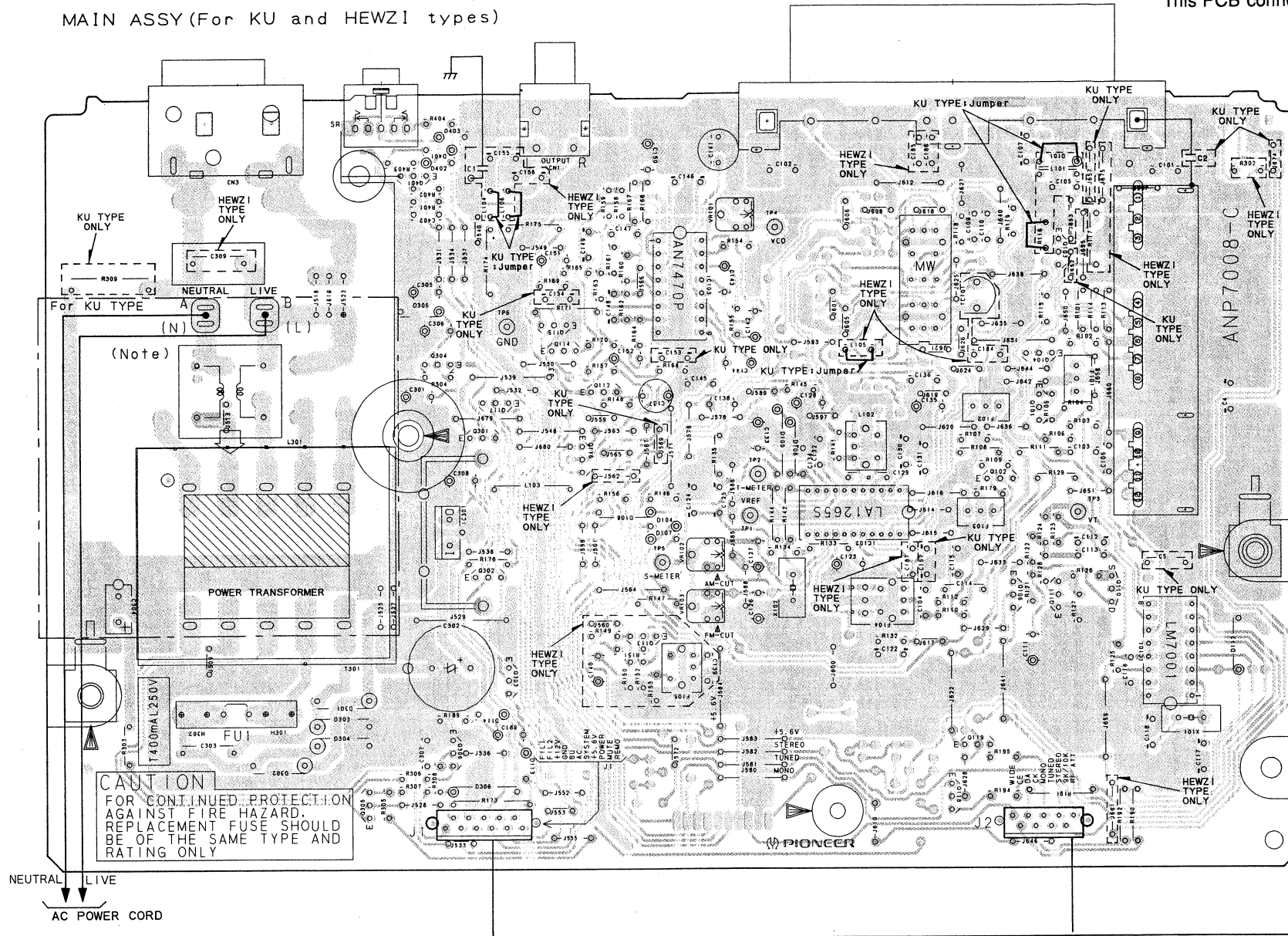
MAIN ASSY (For HE and HB types)

A

B

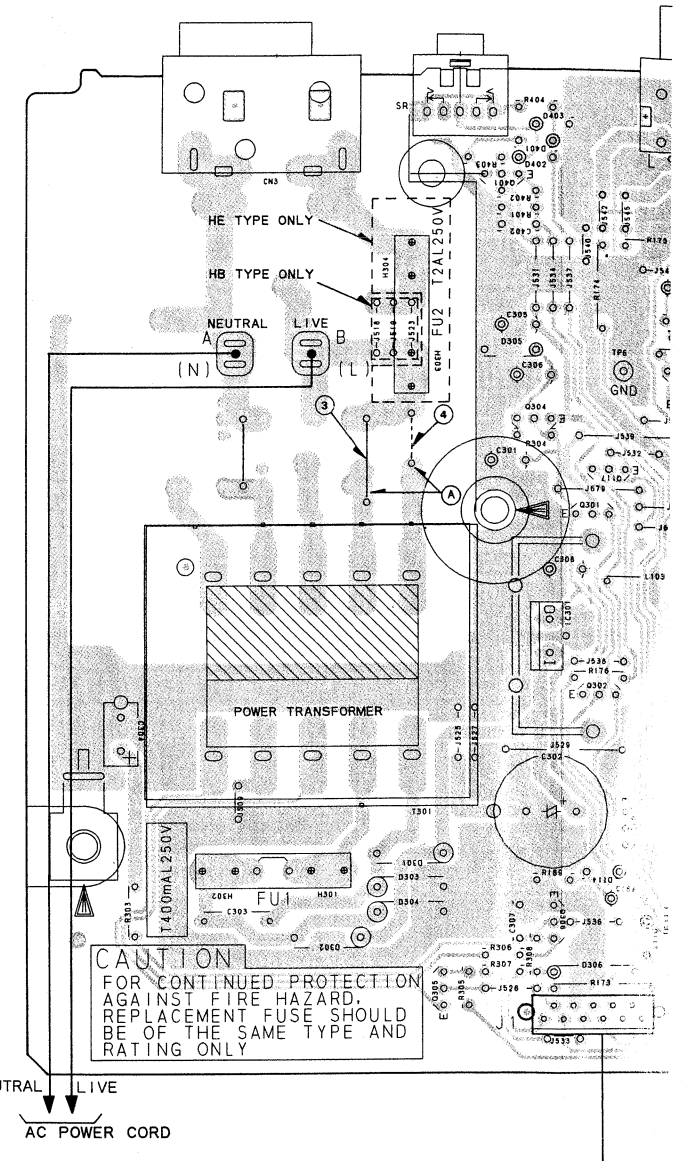
C

D

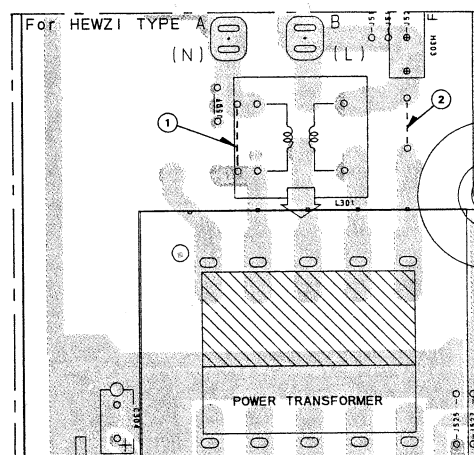


Q401
VR101
Q103
TC101
Q115
Q114
Q304 Q104
Q112 Q101
Q301
Q116
Q102
IC102
IC301
Q302
Q110
Q106 Q111
IC101
Q303
Q119
Q306
Q118
Q305

NEUTRAL LIVE
AC POWER CORD



Note: For HEWZI type, PCB diagram is changed into the following:

**Line Voltage Selection (For HEWZI)**

- Line Voltage can be changed by the following modification:
1. Disconnect the AC power cord.
 2. Remove the cover.
 3. Change the L301 with the jumper-lines ① and ② follows.

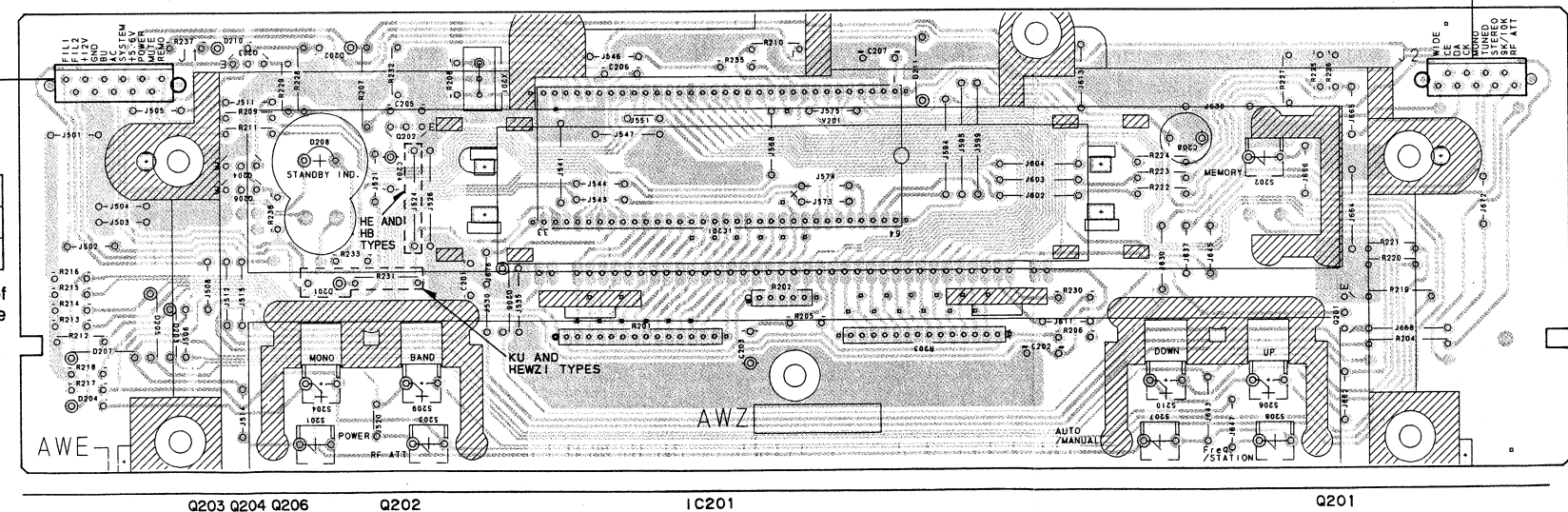
Voltage	L301 or jumper—lines
220V—230V	Change the jumper—lines ① and ② into the L301.
240V	Change the L301 into the jumper—lines ① and ②.

NOTE: When replacing a PCB which has the primary winding circuit of Power-transformer, be sure to compare its circuit with the diagram in Service Manual. Jumper-lines on the PCB may have to be removed. Forgetting this check-up will cause a serious damage.

4. Stick the line voltage label on the rear panel.

Part No.	Description
AAX-193	220V label
AAX-192	240V label

DISPLAY ASSY

**Line Volt**

- Line Voltage
1. Disconnect
 2. Remove th
 3. Change th

Voltage
220V—230V
240V

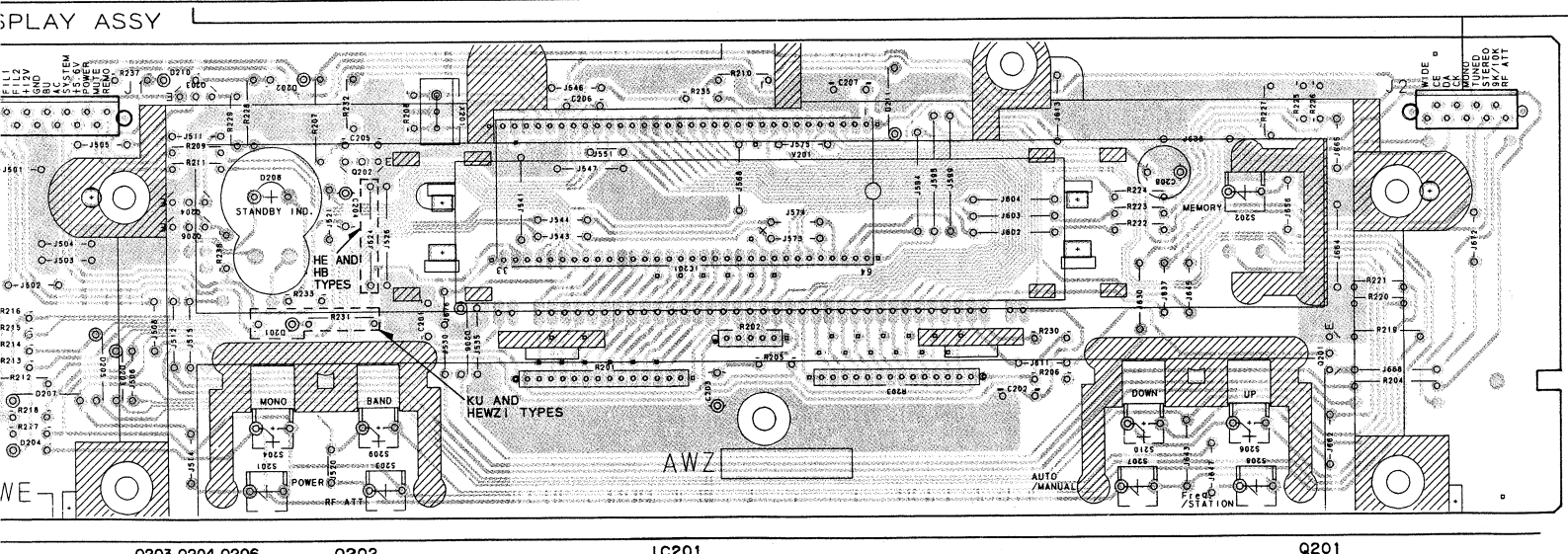
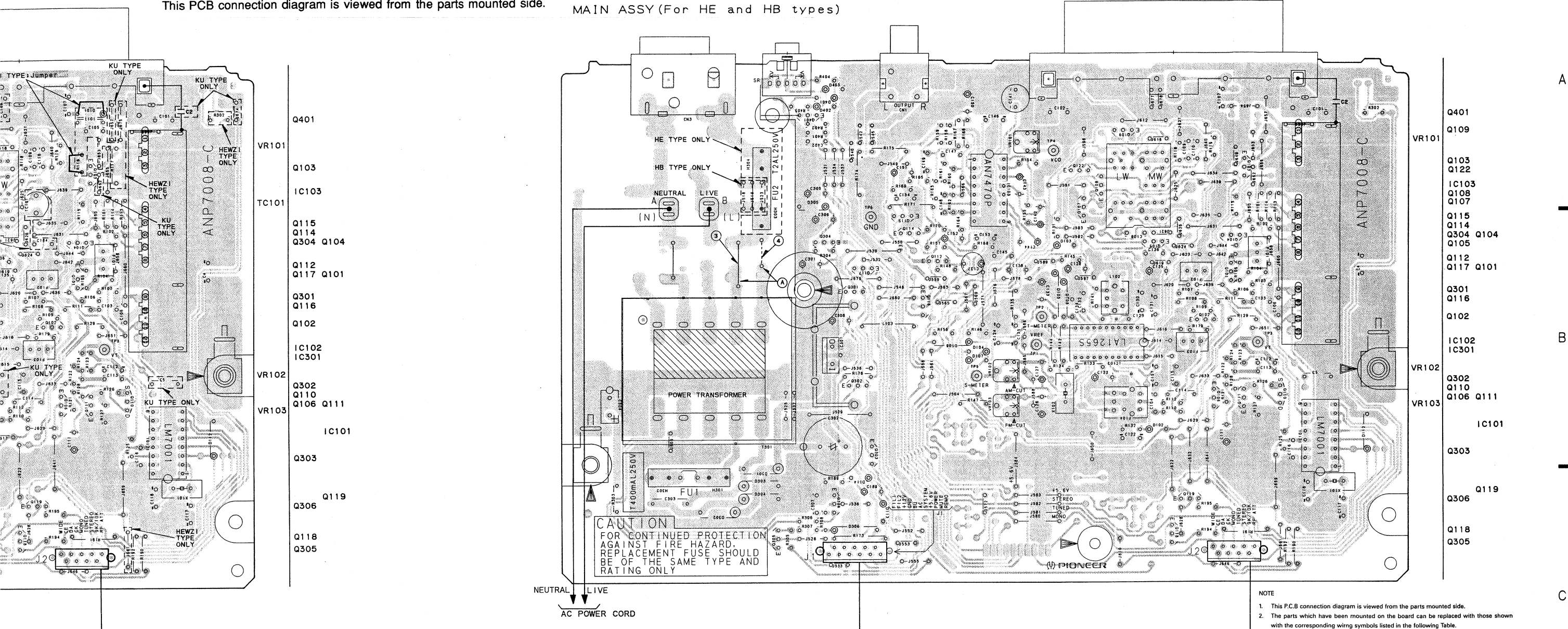
NOTE: When circuit jumper is changed, the circuit jumper must be changed.

4. Stick the l

Part No.	Description
AAX-193	220V label
AAX-192	240V label

This PCB connection diagram is viewed from the parts mounted side.

MAIN ASSY (For HE and HB types)



Line Voltage Selection (For HE and HB)

Line Voltage can be changed by the following modification:

1. Disconnect the AC power cord.
2. Remove the cover.
3. Change the position of the jumper-lines as follows.

Voltage	jumper—line A position
220V—230V	③
240V	④

NOTE: When replacing a PCB which has the primary winding circuit of Power-transformer, be sure to compare its circuit with the diagram in Service Manual. Jumper-lines on the PCB may have to be removed. Forgetting this check-up will cause a serious damage.

4. Stick the line voltage label on the rear panel.

Part No.	Description
AAX—193	220V label
AAX—192	240V label

NOTE

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

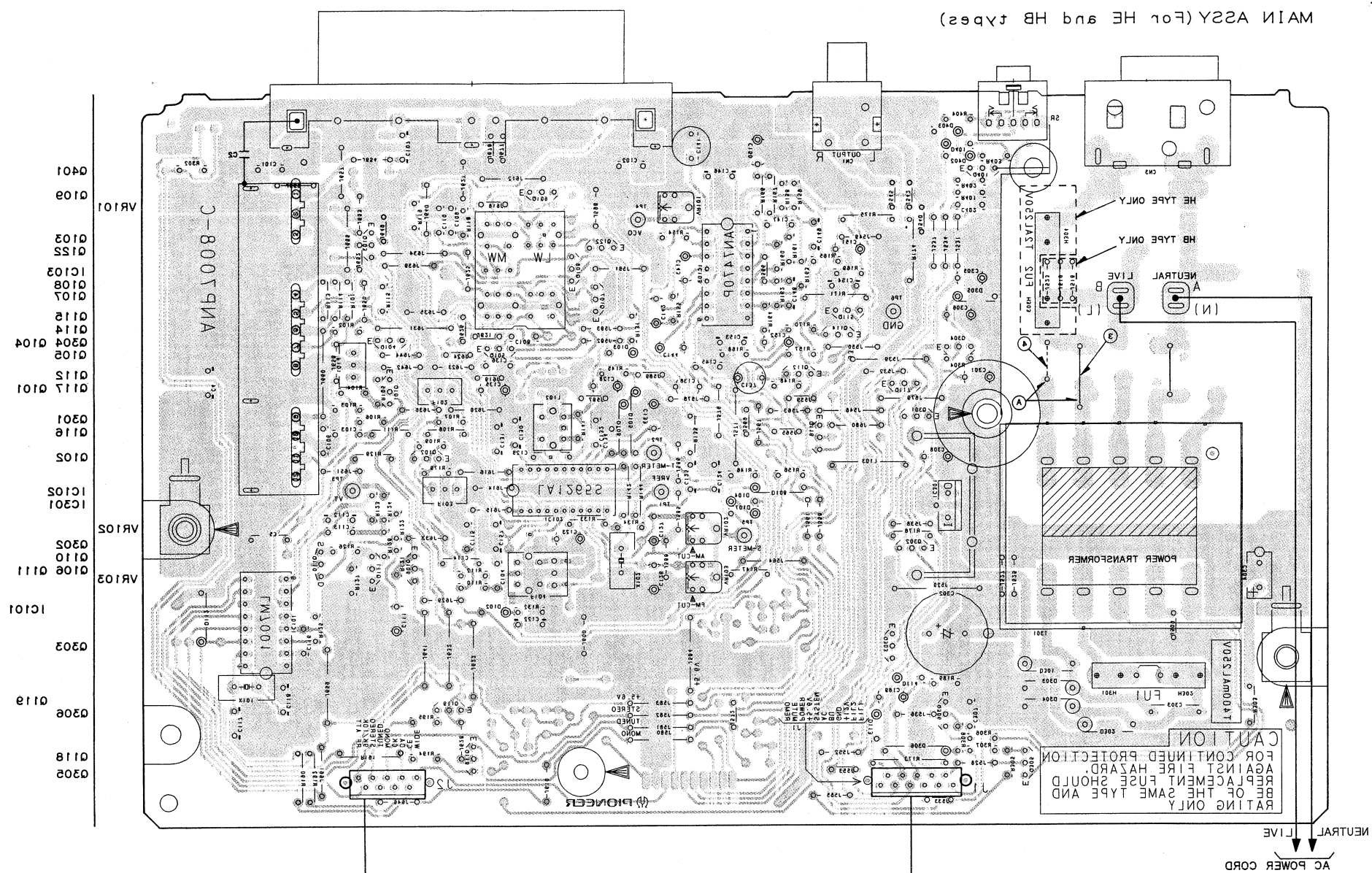
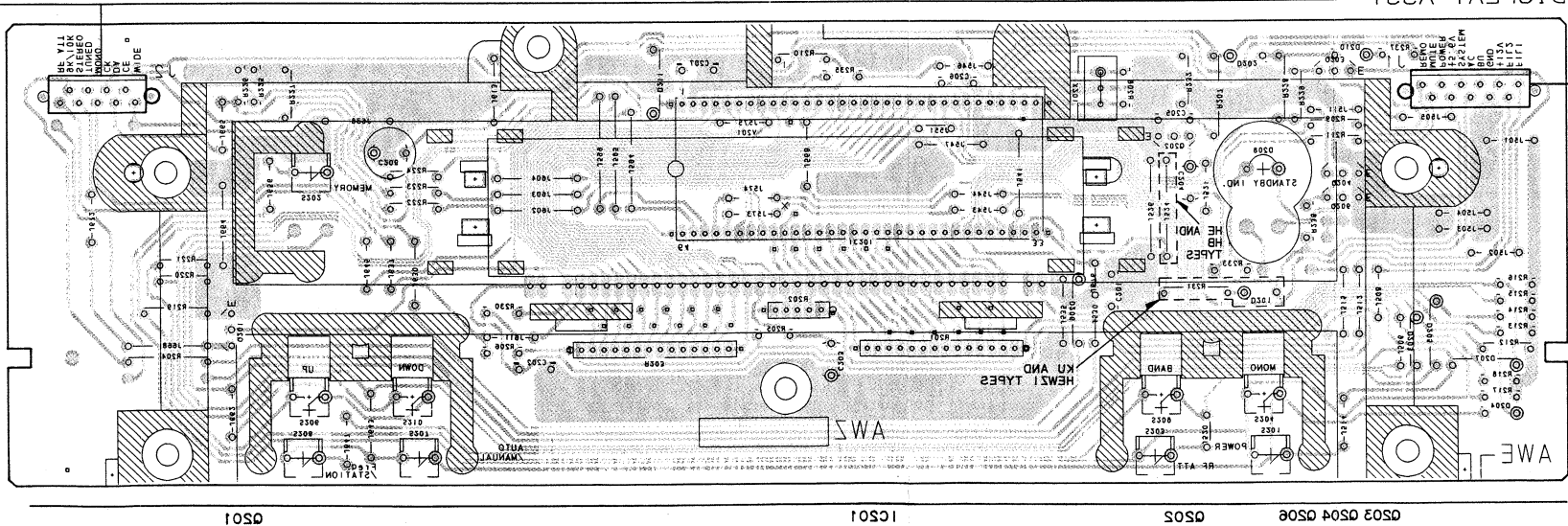
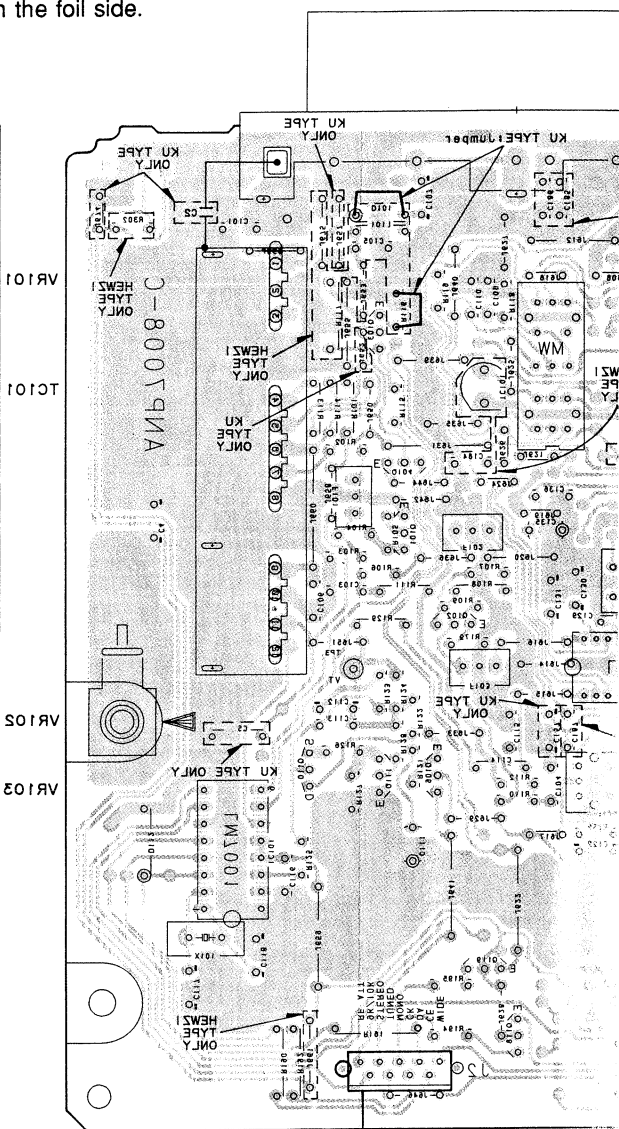
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504		Transistor
Q215		Radiator type transistor
D203		Diode
R237		Resistor
C513		Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

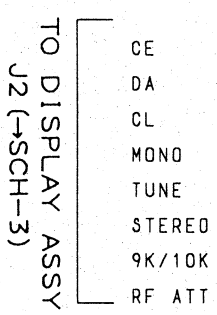
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capacitor terminal marked with © (double circles) shows negative terminal.
4. The diode terminal marked with © (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

MAIN ASSY (For HE and HB types)



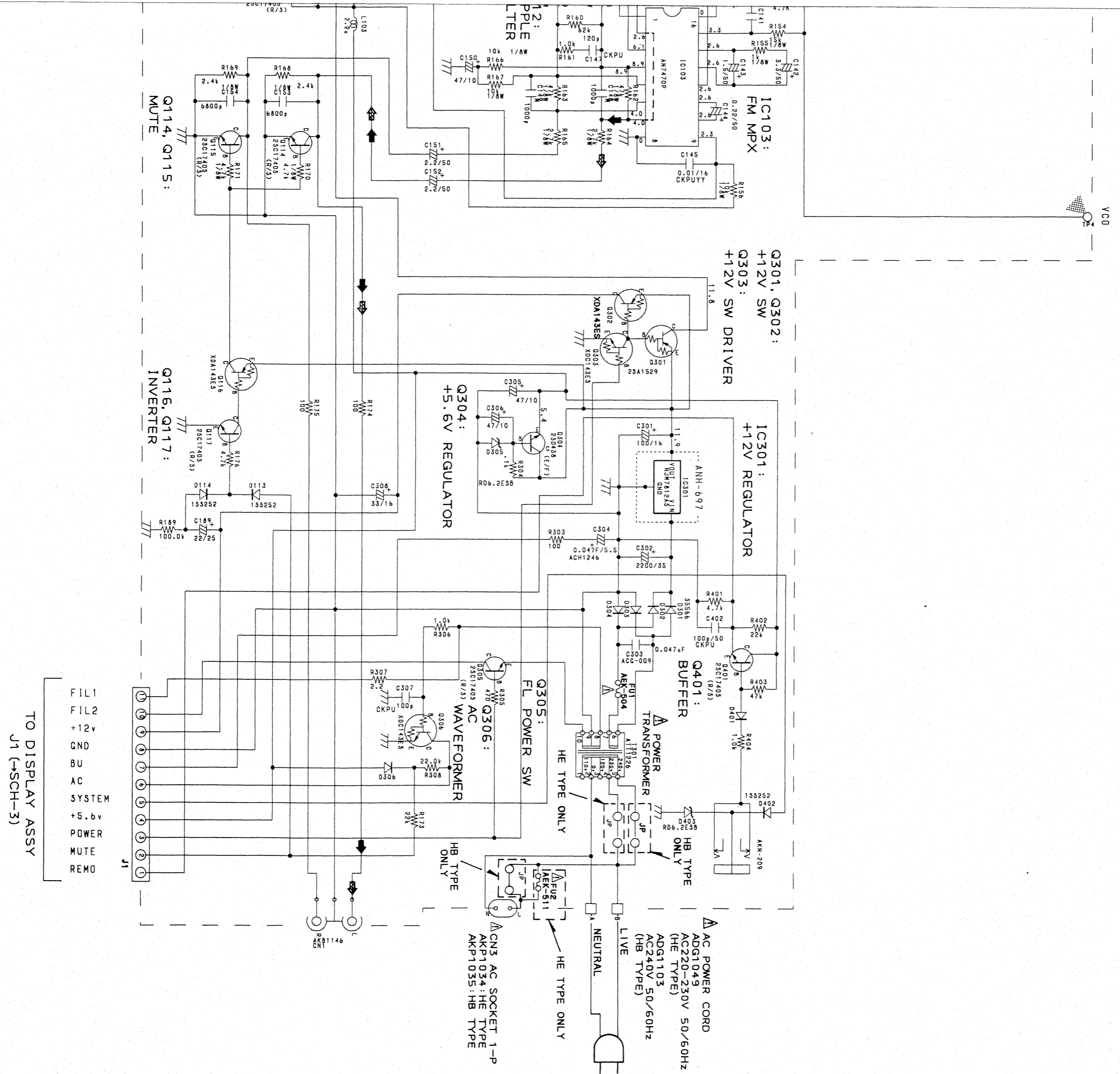
D102-D108, D306, D401 : 155252
D302-D304 : 55566



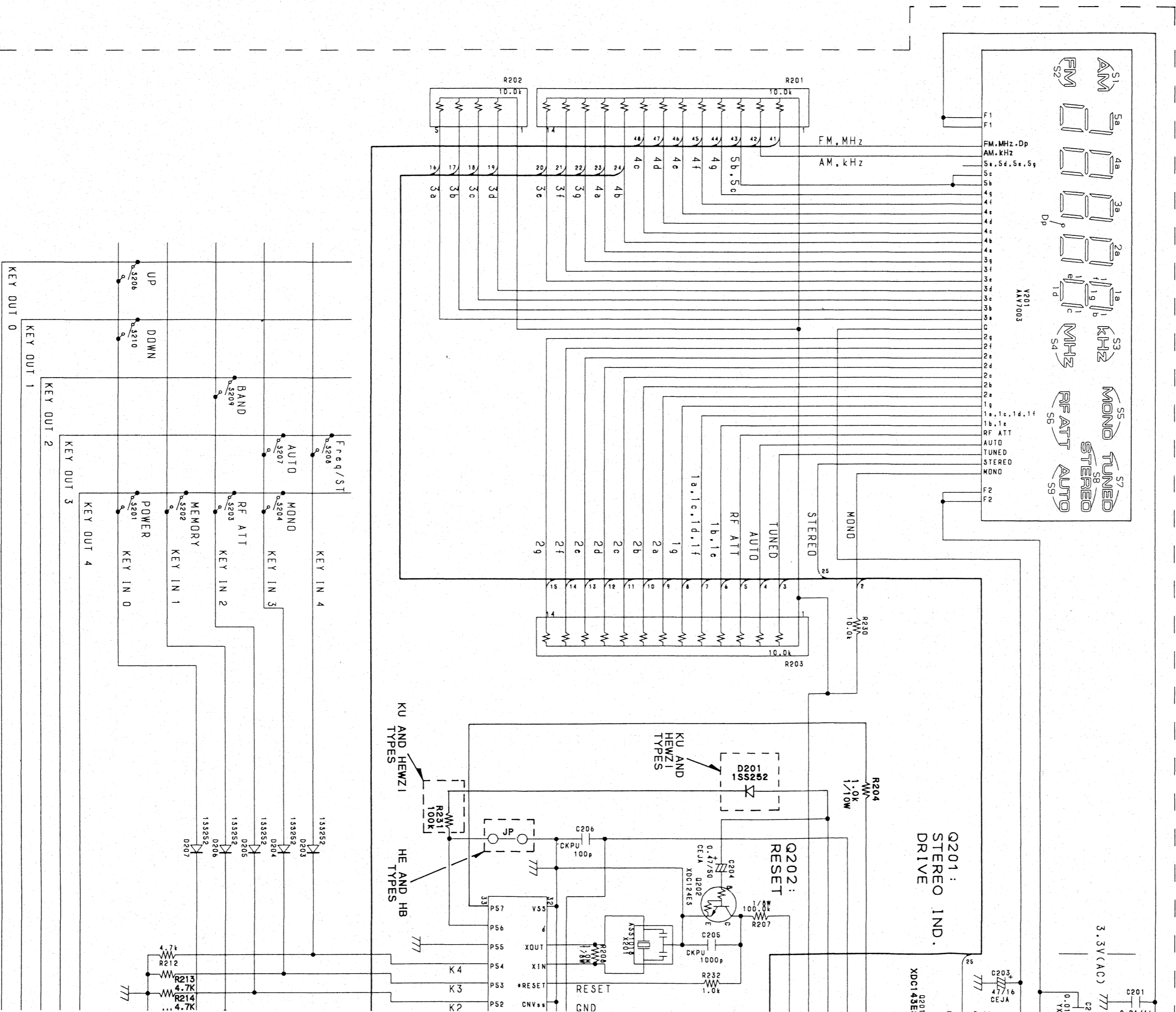
MAIN ASSY
(HE, HB)

SCH-2

➡: FM Signal route
⇨: LW/MW Signal route



DISPLAY ASSY (AWZ7043: KU TYPE)
(AWZ7041: HE AND HB TYPES)
(AWZ7042: HEWZ1 TYPE)



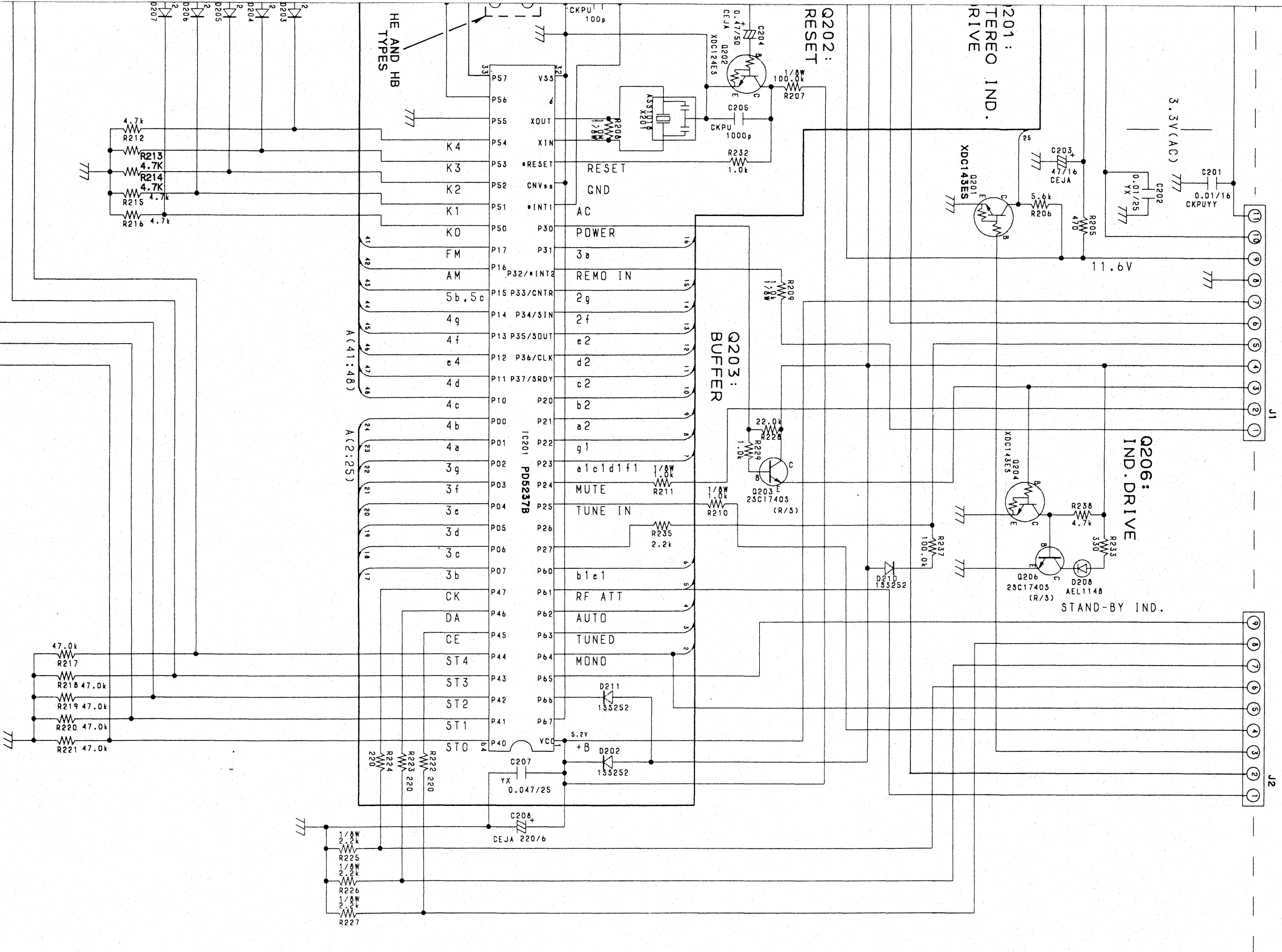
TO MAIN ASSY J1
(→SCH-1) or (→SCH-2)

FIL1
FIL2
+12V
GND
Back up
AC
SYSTEM
+5.6V
POWER
MUTE
REMO IN

TO MAIN ASSY J2
(→SCH-1) or (→SCH-2)

AM W/N
CE
DA
CL
MONO
TUNED
STEREO
9k/10k
RF ATT

SCH-3



DISPLAY ASSY

SCH-3

4. PCB PARTS LIST

(For F—C3/KU and HE)

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560 Ω	\rightarrow	56 $\times 10^1$	\rightarrow	561	RD1/8PM	<table><tr><td>5</td><td>6</td><td>1</td></tr></table> J	5	6	1
5	6	1								
47k Ω	\rightarrow	47 $\times 10^3$	\rightarrow	473	RD1/4PS	<table><tr><td>4</td><td>7</td><td>3</td></tr></table> J	4	7	3
4	7	3								
0.5 Ω	\rightarrow	0R5			RN2H	<table><tr><td>0</td><td>R</td><td>5</td></tr></table> K	0	R	5
0	R	5								
1 Ω	\rightarrow	010			RS1P	<table><tr><td>0</td><td>1</td><td>0</td></tr></table> K	0	1	0
0	1	0								

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω	\rightarrow	562 $\times 10^1$	\rightarrow	5621	RN1/4PC	<table><tr><td>5</td><td>6</td><td>2</td><td>1</td></tr></table> F	5	6	2	1
5	6	2	1								

Mark	No.	Description	Parts No.	Mark	Mark	No.	Description	Parts No.	Mark
------	-----	-------------	-----------	------	------	-----	-------------	-----------	------

LIST OF ASSEMBLIES

TUNER ASSEMBLY (For HE type)	AWE7002
└─ DISPLAY ASSEMBLY	AWZ7041
└─ MAIN ASSEMBLY	AWZ7048

TUNER ASSEMBLY (For KU type)	AWE7004
└─ DISPLAY ASSEMBLY	AWZ7043
└─ MAIN ASSEMBLY	AWZ7050

DISPLAY ASSEMBLY (For KU and HE types)

SEMICONDUCTORS

IC201	PD5237B
Q203,Q206	2SC1740S
Q202	XDC124ES
Q201,Q204	XDC143ES
D201—D207,D210,D211	1SS252
D208	AEL1148

SWITCHES AND RELAYS

S201—S204,S206—S210	ASG1034
---------------------	---------

CAPACITORS

C208	CEJA221M6
C203	CEJA470M16
C204	CEJAR47M50
C202	CKDYX103M25
C207	CKDYX473M25
C206	CKPUYB101K50
C205	CKPUYB102K50
C201	CKPUYY103M16

RESISTORS

R201,R203	RA13T103J
R202	RA4T103J
Other Resistors	RD1/8PM□□□J

OTHERS

X201	(4.19MHz)	ASS1018
V201	FL TUBE	AAV7003

MAIN ASSEMBLY (For HE type)

SEMICONDUCTORS

IC103	AN7470P
IC102	LA1265S
IC101	LM7001J
IC301	NJM7812AS
Q301	2SA1529
Q103,Q112,Q114,Q115	2SC1740S
Q117—Q119,Q305,Q401	2SC1740S
Q111	2SC1740SLN
Q101,Q102	2SC2668
Q304	2SD438
Q110	2SK246
Q104,Q106,Q108	XDA124ES
Q116,Q302	XDA143ES
Q105,Q107,Q109,Q122,Q303	XDC143ES
Q306	XDC143ES
D102—D108,D113,D114,D306	1SS252
D401,D402	1SS252
D112,D305,D403	RD6.2ESB
D301—D304	S5566

COILS AND FILTERS

L102	ATE—079
F101,F102	ATF—119
F103	ATF—107
F104	ATF—208
L103	LAU2R2K

TRANSFORMERS

Δ T301	(6.5VA)	ATT1226
---------------	---------	---------

CAPACITORS

C303	(0.047/AC25V)	ACG—009
C304	(47000/5.5)	ACH1246
C109,C117,C118		CCDCH150J50
C115		CCPUSL470J50
C138		CEANP4R7M50
C133		CEAS010M50
C127		CEAS100M50
C128,C137,C301		CEAS101M16
C143		CEAS1R5M50
C189		CEAS220M25
C302		CEAS222M35

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.	Mark	
	C126,C151,C152		CEAS2R2M50		COILS AND FILTERS				
	C111		CEAS330M16		L102		ATE-079		
	C142		CEAS3R3M50		F103		ATF-107		
	C135,C150,C305,C306		CEAS470M10		F101,F102		ATF-119		
	C123		CEAS4R7M50	△	L301		ATF-163		
					F104		ATF-208		
	C144		CEASR22M50						
	C308		CEHAQ330M16		L103		LAU2R2K		
	C112		CFTXA224J50		TRANSFORMERS				
	C107,C2		CKDYB103K50	△	T301	(6.5VA)	ATT1226		
	C124		CKDYB222K50		CAPACITORS				
	C153,C154		CKDYB682K50		C303	(0.047/AC25V)	ACG-009		
	C132		CKDYF103Z50		C304	(47000/5.5)	ACH1246		
	C122,C130,C131,C157,C4		CKDYF223Z50		C109,C117,C118		CCDCH150J50		
	C125,C146		CKDYX473M25		C115		CCPUSL470J50		
	C307,C402,C5		CKPUYB101K50		C138		CEANP4R7M50		
	C101,C102		CKPUYB102K50		C133		CEAS010M50		
	C147		CKPUYB121K50		C127		CEAS100M50		
	C134		CKPUYB331K50		C128,C137,C301		CEAS101M16		
	C108,C110		CKPUYF473Z16		C143		CEAS1R5M50		
	C103,C104,C106,C113,C114		CKPUYY103M16		C189		CEAS220M25		
	C116,C129,C136,C145		CKPUYY103M16		C302		CEAS222M35		
	C148,C149		CQMA102J50		C126,C151,C152		CEAS2R2M50		
	C141		CQPA471J100		C111		CEAS330M16		
					C142		CEAS3R3M50		
					C135,C150,C305,C306		CEAS470M10		
RESISTORS					C123		CEAS4R7M50		
	VR101	(4.7k)	ACP1042		C144		CEASR22M50		
	VR102	(10k)	ACP1043		C308		CEHAQ330M16		
	VR103	(22k)	ACP1044		C112		CFTXA224J50		
		Other Resistors	RD1/8PM□□□J		C107,C2		CKDYB103K50		
OTHERS					C124		CKDYB222K50		
	X101	(7.200MHz)	ASS1042		C132		CKDYF103Z50		
	X102	(450kHz)	ATF1027		C122,C130,C131,C157,C4		CKDYF223Z50		
		SCREW	ABA1012		C153,C154		CKDYX103M25		
		ANTENNA TERMINAL 4-P	AKA1010		C125,C146		CKDYX473M25		
		PIN JACK(2P)	AKB1146		C307,C402,C5		CKPUYB101K50		
					C101,C102		CKPUYB102K50		
△					C147		CKPUYB121K50		
	JACK		AKN-209		C134		CKPUYB331K50		
	AC SOCKET 1-P		AKP1034		C110		CKPUYF473Z16		
	AM RF TUNING BLOCK		AXX1026		C103,C104,C106,C113,C114		CKPUYY103M16		
	3—serial F.E.module assembly		AXQ1003		C116,C129,C136,C145		CKPUYY103M16		
Note:					C148,C149		CQMA102J50		
	3—serial F.E.module assembly has no service part.				C141		CQPA471J100		
MAIN ASSEMBLY (For KU type)					RESISTORS				
SEMICONDUCTORS					△	R309	(2.2M,1/2W)	ACN-208	
	IC103		AN7470P		VR101	(4.7k)	ACP1042		
	IC102		LA1265S		VR102	(10k)	ACP1043		
	IC101		LM7001J		VR103	(22k)	ACP1044		
	IC301		NJM7812AS			Other Resistors	RD1/8PM□□□J		
	Q301		2SA1529		OTHERS				
	Q103,Q112,Q114,Q115		2SC1740S		X101	(7.200MHz)	ASS1042		
	Q117-Q119,Q305,Q401		2SC1740S		X102	(450kHz)	ATF1027		
	Q111		2SC1740SLN			SCREW	ABA1012		
	Q101,Q102		2SC2668			ANTENNA TERMINAL 4-P	AKA1009		
	Q304		2SD438			PIN JACK(2P)	AKB1146		
	Q110		2SK246						
	Q104,Q106		XDA124ES		JACK		AKN-209		
	Q116,Q302		XDA143ES		△	AC SOCKET 1-P	AKP1078		
	Q303,Q306		XDC143ES			AM RF TUNING BLOCK	AXX1025		
	D104-D108,D113,D114,D306		1SS252			3—serial F.E.module assembly	AXQ1003		
	D401,D402		1SS252		Note:				
	D112,D305,D403		RD6.2ESB		3—serial F.E.module assembly has no service part.				
	D301-D304		S5566						

5. ADJUSTMENTS

ADJUSTMENT OF THE FM TUNER SECTION

- Set the mode selector to FM BAND.
- Connect the wiring as shown in the Fig. 1.

Step No.	Adjustment Title	FM SG(1kHz, ± 75 kHz dev.)		Reception Frequency Display	Adjustment	
		Frequency(MHz)	Level(dB μ V)		Adjustment Location	Specifications
1	Center adjustment	98	60	98.0MHz	L102	Adjust so that the DC voltage between the TP1(VREF) and TP2(T-METER) becomes $0V \pm 50mV$.
2	VCO adjustment	Non modulation	60	98.0MHz	VR101	Adjust so that the output of the TP4 (VCO) becomes $76kHz \pm 0.5kHz$.
3	TUNED IND. Lighting level	98	$24 (\pm 3dB)$	98.0MHz	VR103	Adjust so that the indicators of TUND IND. start to light up.

ADJUSTMENT OF MW TUNER SECTION

- Set the mode selector to AM(MW) BAND.
- Connect the wiring as shown in the Fig. 1.

Step No.	Adjustment Title	AM SG(400Hz, 30% Mod.)		Reception Frequency Display	Adjustment	
		Frequency(kHz)	Level(dB μ V/m)		Adjustment Location	Specifications
1	Tracking adjustment *2	603	Low input	603kHz	AM RF Tuning block antenna coil	Adjust so that the DC voltage between the TP5(S-METER) and GND becomes at maximum level.
2		1395		1395kHz	TC101	
3	IFT adjustment *2	603		603kHz	F104	
4	TUNED IND. Lighting level	999 *1	$55 (\pm 5dB)$	999kHz *1	VR102	Adjust so that the indicator of TUNED IND. start to lights up.

Note1:

For the area using 10kHz step (KU type : 10kHz), frequencies should be as follows:

*1 : 1000kHz

Note2:

Adjustment marked with "*2" is only for HEWZI type.

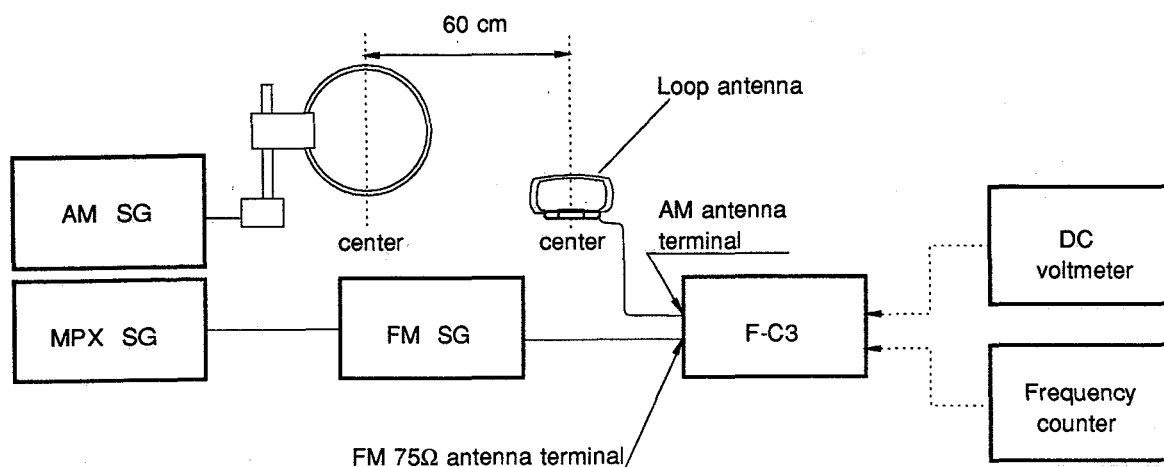
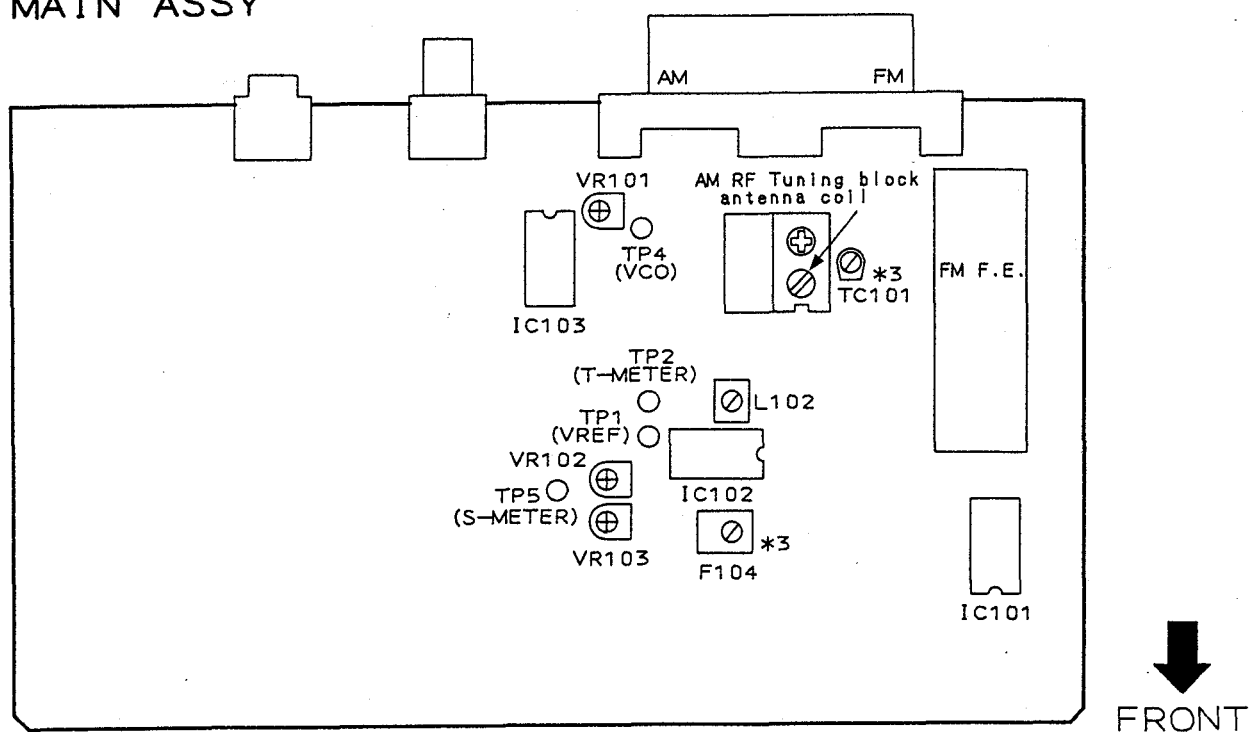


Fig. 1 AM and FM adjustment wiring diagram

MAIN ASSY



*3 : HEWZI type only

Fig. 2 Adjustment points

6. FOR HEWZI AND HB TYPES

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

6.1 CONTRAST OF MISCELLANEOUS PARTS FOR HEWZI TYPE

F-C3/HEWZI and F-C3/KU have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		F-C3/KU	F-C3/HEWZI	
Δ	TUNER assembly	AWE7004	AWE7003	Refer to P.5
	DISPLAY assembly	AWZ7043	AWZ7042	
	MAIN assembly	AWZ7050	AWZ7049	
	Screw (STEEL)	.....	ABA1047
	AC power cord	ADG1058	ADG1049	
	FM antenna	ADH1005	ADH1002	
	FU1 Fuse (500mA/125V)	AEK-136	.....
	FU1 Fuse (T400mA/250V)	.....	AEK-504
	Cord stopper	AEP-113	AEC-882	
	Packing case	AHD7015	AHD7014	
Δ	Sub panel	AMB7073	AMB7029	
	Front panel	AMB7079	AMB7027	
	Rear panel	ANC7060	ANC7057	
	Operating instructions (English)	ARB7005	.....
Δ	Operating instructions (German/Italian)	ARC7005	
	PCB post	.....	DEC1390
NSP	65 label	ORW1069	

MAIN ASSEMBLY

AWZ7049 and AWZ7050 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		AWZ7050	AWZ7049	
	FE module assembly (3L)	AXQ1003	
	FE module assembly (4L)	.....	AXQ1004
	AM RF tuning block (MW)	AXX1025	AXX1027	
	D101	.....	1SV156
	Q113	.....	2SC1740S
	R116	.....	RD1/8PM270J
	R117	.....	RD1/2PM681J
	R149	.....	RD1/8PM224J
	R150	.....	RD1/8PM473J
	R151	.....	RD1/8PM222J
	R152	.....	RD1/8PM152J

Mark	Symbol & Description	Part No.		Remarks
		AWZ7050	AWZ7049	
△	R153	.....	RD1/8PM392J	
	R160	RD1/8PM623J	RD1/8PM473J	
	R168,R169	RD1/8PM242J	RD1/8PM912J	
	R302	.....	RD1/8PM102J	
	R309	ACN-208	.....
	C1	.....	CKDYX103M25	
	C2	CKDYB103K50	.....
	C5	CKPUYB101K50	.....
	C105	.....	CKDYB103K50	
	C110	CKPUYF473Z16	CKDYX473M25	
△	C139	.....	CKDYB122K50	
	C140	.....	CEA S4R7M50	
	C153,C154	CKDYX103M25	.....
	C155,C156	.....	CKDYB332K50	
	C157	CKDYF223Z50	.....
	C184	.....	CKPUYF223Z25	
	C185	.....	CKPUYB101K50	
	C186	.....	CKPUYB102K50	
	C187	.....	CCPUSL270J50	
	C309	.....	ACG1002	
△	TC101	.....	ACM-018	
	F105	.....	ATF1088	
	L101	.....	LAU2R2J	
	L104,L106	.....	LAU2R2K	
	L105	.....	LAU330J	
	L301	ATF-163	ATF1135	
	Antenna terminal 4-P	AKA1009	.....
	Antenna terminal PAL 2-P	.....	AKA1012	
	CN3 AC socket 1-P	AKP1078	AKP1034	

DISPLAY ASSEMBLY

Although AWZ7042 and AWZ7043 are different in part number, they consist of the same components.

6.2 CONTRAST OF MISCELLANEOUS PARTS FOR HB TYPE

F-C3/HB and F-C3/HE have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		F-C3/HE	F-C3/HB	
	TUNER assembly	AWE7002	AWE7001	
	MAIN assembly	AWZ7048	AWZ7047	

Mark	Symbol & Description	Part No.		Remarks
		F-C3/HE	F-C3/HB	
△	AC power cord	ADG1049	ADG1103	Refer to P.5
	Binder	.....	AEC—093
△	FU2 Fuse (T2A/250V)	AEK—511	.....
	Rear panel	ANC7058	ANC7059	
	Operating instructions (English/German/French/Italian/ Swedish/Spanish/Dutch/Portuguese)	ARE7010	.....
	Operating instructions (English)	.....	ARB7005
	Sub operating instructions (English/German/French/Italian/ Swedish/Spanish/Dutch/Portuguese)	ARH7003	.....

MAIN ASSEMBLY

AWZ7047 and AWZ7048 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		AWZ7048	AWZ7047	
△	CN3 AC socket 1 --P	AKP1034	AKP1035	

7. SPECIFICATIONS

FM Tuner Section

Frequency range	87.5 MHz to 108 MHz
Usable Sensitivity (IHF)	12.7 dBf (1.2 μ V/75 Ω)
50 dB Quieting Sensitivity	Mono; 18 dBf (2.2 μ V/75 Ω) Stereo; 38.3 dBf (22.6 μ V/75 Ω)
Sensitivity (DIN)	Mono; 1.0 μ V/75 Ω Stereo; 35 μ V/75 Ω
Signal-to-Noise Ratio	Mono; 78 dB (at 85 dbf) Stereo; 74 dB (at 85 dbf)
Signal-to-Noise Ratio (DIN)	Mono; 62 dB Stereo; 60 dB
Distortion	0.3 % (1 kHz)
Alternate Channel Selectivity	60 dB (300 kHz)
Stereo Separation	40 dB (1 kHz)
Frequency Response	30 Hz to 15 kHz \pm 1 dB
Image Response Ratio	50 dB
IF Response Ratio	90 dB
Antenna Input	75 Ω unbalanced
Output	650 mV (100 % MOD.)

MW (AM) Tuner Section

Frequency range	
U.S. model	530 kHz to 1,700 kHz (Step 10 kHz)
U.K. model	531 kHz to 1,602 kHz (Step 9 kHz)
Sensitivity (IHF, Loop antenna)	350 μ V/m
Selectivity	20 dB
Signal-to Noise Ratio	50 dB
Antenna	Loop Antenna
Output	150 mV (30 % MOD.)

LW Tuner Section (U.K. model only)

Frequency range	153 kHz to 281 kHz
Sensitivity (IHF, Loop antenna)	1,500 μ V/m
Selectivity	20 dB
Signal-to-Noise Ratio	50 dB
Antenna	Loop Antenna
Output	158 mV (30 % MOD.)

Miscellaneous

Power Requirements

U.S. model AC 120 V, 60 Hz
U.K. model AC 240 Volts ~, 50/60 Hz
Power Consumption 10 W
Dimensions 260 (W) x 95.5 (H) x 336 (D) mm
10-1/4 (W) x 3-3/4 (H) x 13-1/16 (D) in
Weight (without package) 2.3 kg (5 lb 1 oz)

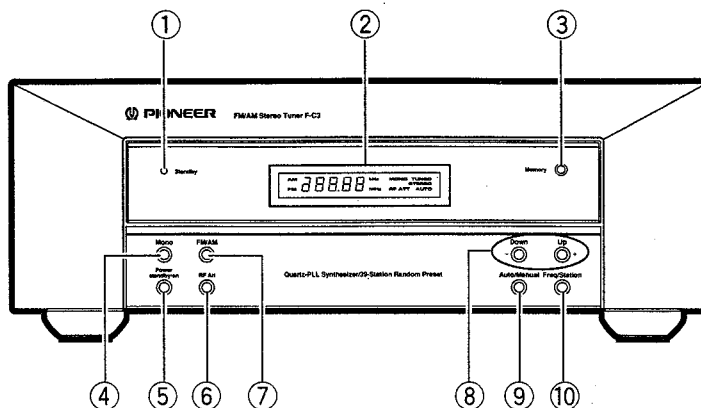
Furnished Parts

FM T-type Antenna	1
AM Loop Antenna	1
Connecting Cord with Pin Plugs	1
Operating Instructions	1
Control cable	1

NOTE:

Specifications and design subject to possible modification without notice, due to improvements.

8. PANEL FACILITIES



① Standby indicator

Goes out when power is turned on; lights when power is set to standby.

② Display section

③ Memory button

④ Mono button

⑤ Power standby/on switch

This is the switch for electric power.

On: When set to the on position, power is supplied and the unit becomes operational.

Standby: When set to the standby position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness.

When the Standby indicator lights, the unit is in STANDBY.

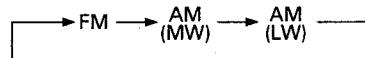
⑥ RF Att button

Press this RF attenuator button if the excessive strength of FM signals results in distortion. The RF ATT indicator will light in the display section.

• This function does not operate during AM broadcasts.

⑦ FM/AM button

Each time you press the button, the changes as follows.

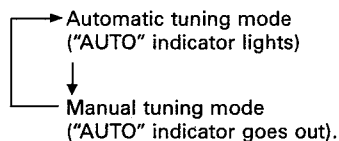


⑧ Tuning Up+ Down- button

Use to tune broadcast stations.

⑨ Auto/Manual button

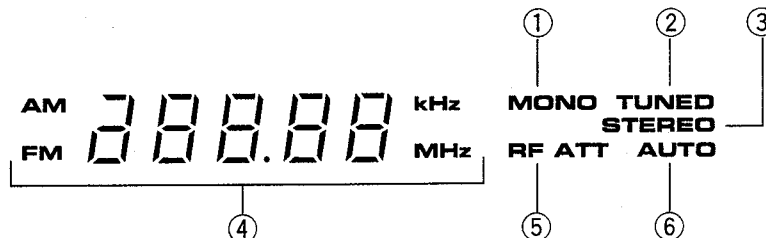
When this button is pressed, the tuning function changes alternately as follows:



• Auto tuning is not possible on the LW band.

⑩ Frequency/Station button

Display Section



① Lights when the Mono button is set to ON.

② Lights when broadcast is received.

③ Lights during reception of stereo broadcast.

④ Displays the frequency or station.

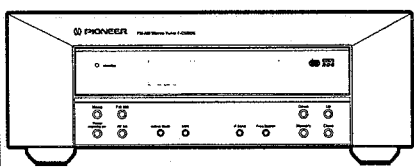
⑤ Lights when RF attenuator function is on.

⑥ Lights during auto tuning mode.

4209



Service Manual



ORDER NO.
RRV1108

FM/AM DIGITAL SYNTHESIZER TUNER F-C5RDS

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	The voltage can be converted by the following method.
	F-C5RDS		
HE	○	AC220—230V	AC240V, *
HB	○	AC240V	AC220—230V, *
HEWZI	○	AC220—230V	AC240V, *

* : Alter the wiring of the Power-supply block at the primary winding of Power-transformer referring to the "Line Voltage Selection" described in Service Manual.

• For HB and HEWZI types, refer to page 30.

CONTENTS

1. EXPLODED VIEWS, PACKING AND PARTS LIST	2
2. BLOCK DIAGRAM	5
3. FL INFORMATION	6
4. SCHEMATIC AND PCB CONNECTION DIAGRAMS	7
5. PCB PARTS LIST	26
6. ADJUSTMENTS	28
7. FOR HB AND HEWZI TYPES	30
8. CONNECTIONS	31
9. PANEL FACILITIES	32
10. SPECIFICATIONS	33

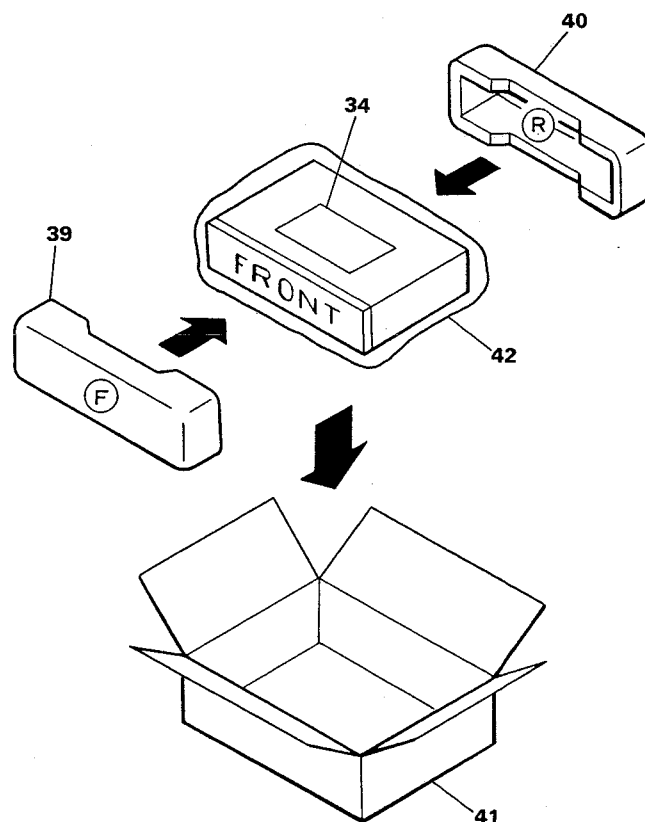
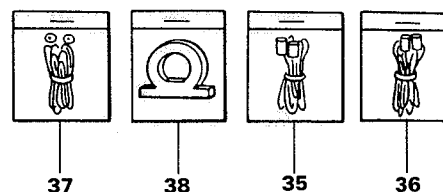
4209

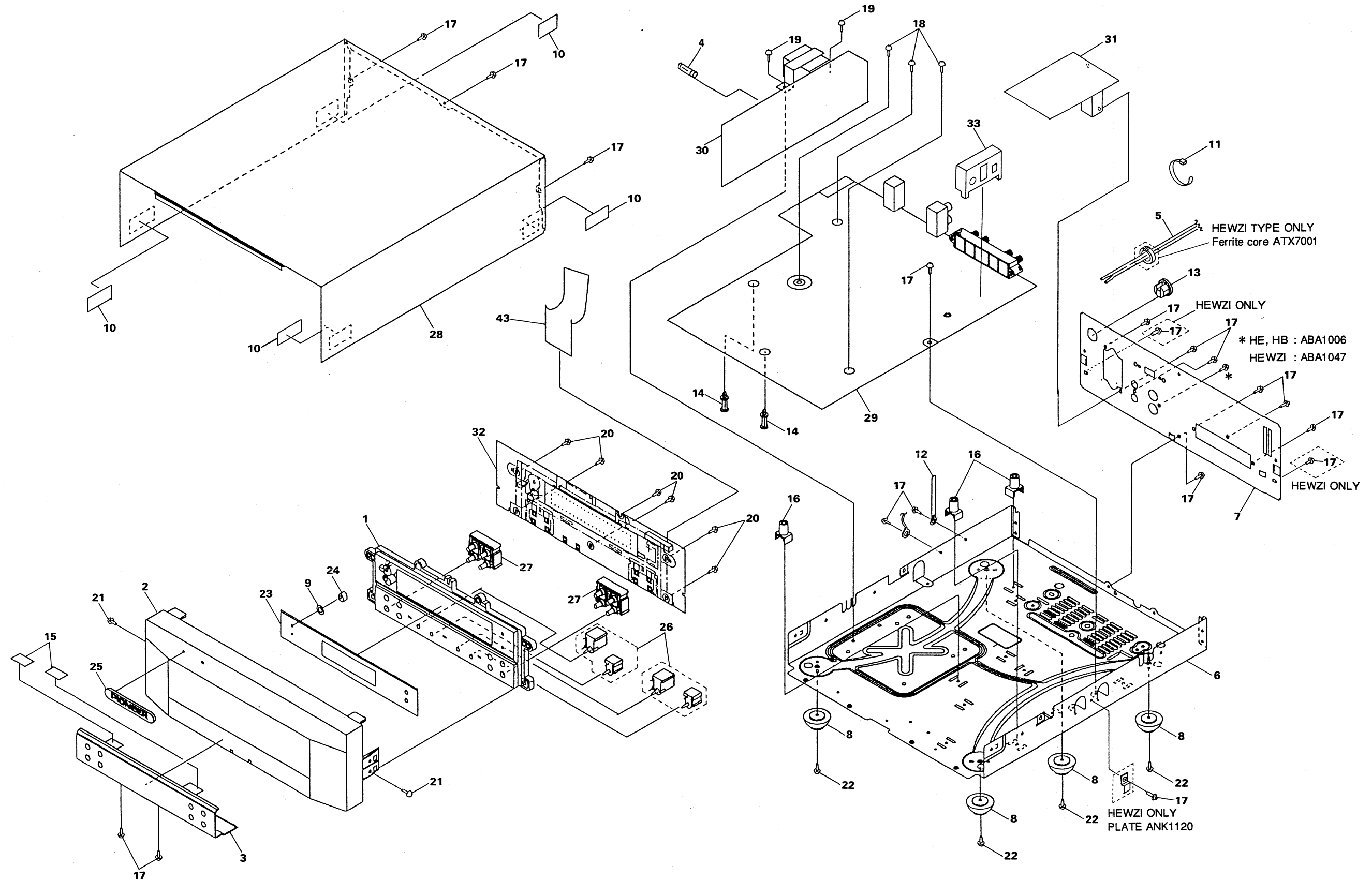
1. EXPLODED VIEWS, PACKING AND PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Mark	No.	Description	Parts No.
	1	SUB PANEL	AMB7029
	2	FRONT PANEL	AMB7080
	3	FRONT PANEL	ANB7005
Δ	4	FU1 FUSE (2.5A,250V)	AEK-512
Δ	5	AC POWER CORD	ADG1049
NSP	6	CHASSIS	ANA7006
	7	REAR PANEL	ANC7095
	8	INSULATOR	PNW2363
	9	WASHER	ABE7001
	10	CUSHON GUM	AEB7004
	11	NYLON BINDER	AEC-093
	12	BINDER	AEC-826
Δ	13	STRAIN RELIEF	AEC-882
	14	PCB SPACER(3X12)	AEC1372
	15	SPACER (PVC)	AEC7007
NSP	16	PCB MOULD	AMR1525
	17	SCREW (STEEL)	ABA1006
	18	SCREW	ABA1018
	19	SCREW (STEEL)	ABA1048
	20	SCREW	BBZ26P100FMC
	21	SCREW	BBZ30P080FZK
	22	SCREW	BBZ30P100FZK
	23	DISPLAY PANEL	AAK7071
	24	LED LENS	PNW2019
	25	NAME PLATE (AL)	RAN1013
	26	BUTTON	AAD7052
	27	BUTTON	RAC1859
	28	BONNET	ANE7010
	29	TUNER ASSEMBLY	AWZ7272
	30	POWER ASSEMBLY	AWZ7275
	31	OUTLET ASSEMBLY	AWZ7279
	32	DISPLAY ASSEMBLY	AWP7001
	33	4 SERIAL F.E. MODULE ASSY	AXQ1004
	34	OPE. INSTRUCTIONS (English/French/German/Italian/ Swedish/Dutch/Spanish/ Portuguese)	ARE7015
	35	PLUG CORD	ADE-052
	36	CORD WITH PLUG	ADE-085
	37	FM ANTENNA	ADH1005
	38	LOOP ANTENNA	ATB1011
	39	F.PAD	AHA7010
	40	R.PAD(PS)	AHA7011
	41	PACKING CASE	AHD7055
	42	PACKING SHEET	AHG1093
	43	FLEXIBLE CABLE	ADD1114







NOTE: Screws adjacent to ▼ mark on product are used for disassembly.

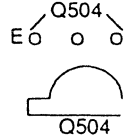
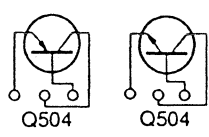
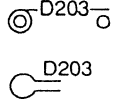

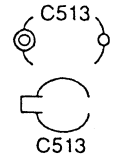
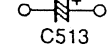
4. SCHEMATIC AND PCB CONNECTION DIAGRAMS




NOTE FOR SCHEMATIC DIAGRAMS (Type 3A)

- When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".
- Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.
- RESISTORS:**
Unit: k: $k\Omega$, M: $M\Omega$, or Ω unless otherwise noted.
Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
Tolerance: (F): $\pm 1\%$, (G): $\pm 2\%$, (K): $\pm 10\%$, (M): $\pm 20\%$ or $\pm 5\%$ unless otherwise noted.
- CAPACITORS:**
Unit: p: pF or μ F unless otherwise noted.
Ratings: capacitor (μ F)/ voltage (V) unless otherwise noted.
Rated voltage: 50V except for electrolytic capacitors.
- COILS:**
Unit: m: mH or μ H unless otherwise noted.
- VOLTAGE AND CURRENT:**
 : Signal voltage at FM 1kHz, 100% MOD.
 or \pm V :
DC voltage (V) at no input signal unless otherwise noted.
Value in () is DC voltage at rated power.
 \leftrightarrow mA or \leftarrow mA :
DC current at no input signal unless otherwise noted.
- OTHERS:**
 - \odot or \bullet : Adjusting point.
 - \blacktriangleleft : Measurement point.
 - The Δ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
- SCH-□ ON THE SCHEMATIC DIAGRAM:**
 - SCH-□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
- SWITCHES** (Underline indicates switch position):
S901: POWER (STANDBY/ON)
S902: RF Att
S905: Class
S906: FM/AM
S911: Memory
S916: Active mode
S917: IF Band
S921: EON
S922: Mono
S924: Freq/Station
S925: Up
S926: Down

NOTE FOR PCB DIAGRAMS:

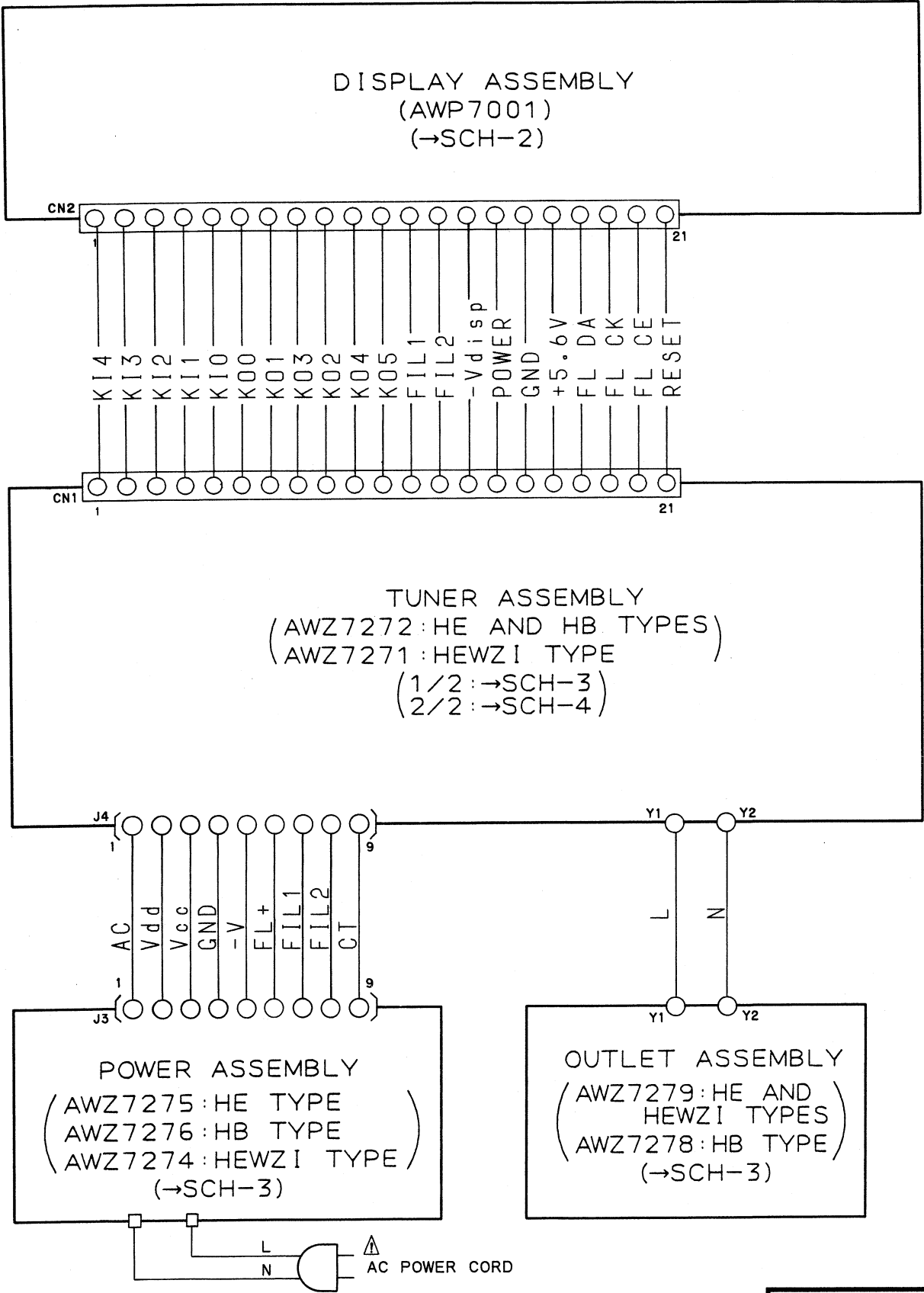
- Part numbers in PCB diagrams match those in the schematic diagrams.
- A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
 Q504	 Q504	Transistor
 D203	 D203	Diode
 C513	 C513	Capacitor (Polarized)

- The transistor terminal marked with E or  shows the emitter.
- The diode terminal marked with \odot or  shows cathode side.
- The capacitor terminal marked with \odot or  shows negative terminal.

4.1 OVERALL WIRING DIAGRAM

SCH-1



OVERALL

SCH-1

A

8

5

9

2

6

3



B

C

D

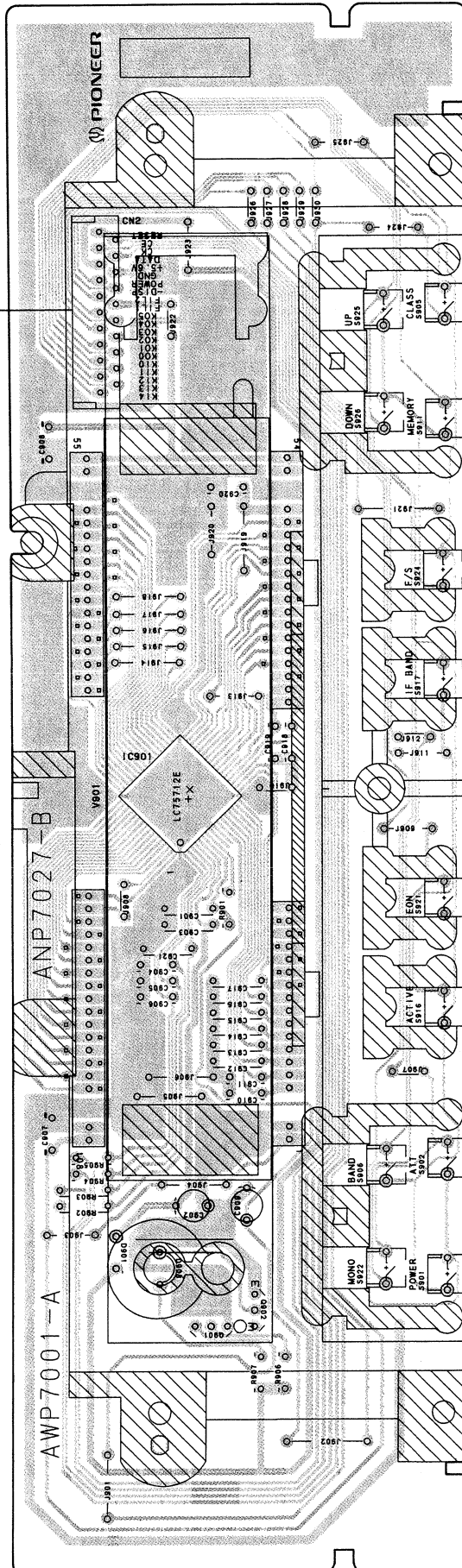
PCB-1

4.2 DISPLAY ASSEMBLY

- This diagram is viewed from the mounted parts side.

DISPLAY ASSEMBLY

PCB-1

TO TUNER ASSEMBLY
CN1

IC901

Q902
Q901

TO TUNER ASSEMBLY (2/2) CN1 (→SCH-4)

DISPLAY ASSEMBLY (AWP7001)

CN2
AKP1086

K14
K13
K12
K11
K10
K00
K01
K02
K03
K04
K05
FIL1
FIL2
-VDISP
POWER
GND
+5.6V
FL DATA
FL CK
FL CE
RESET

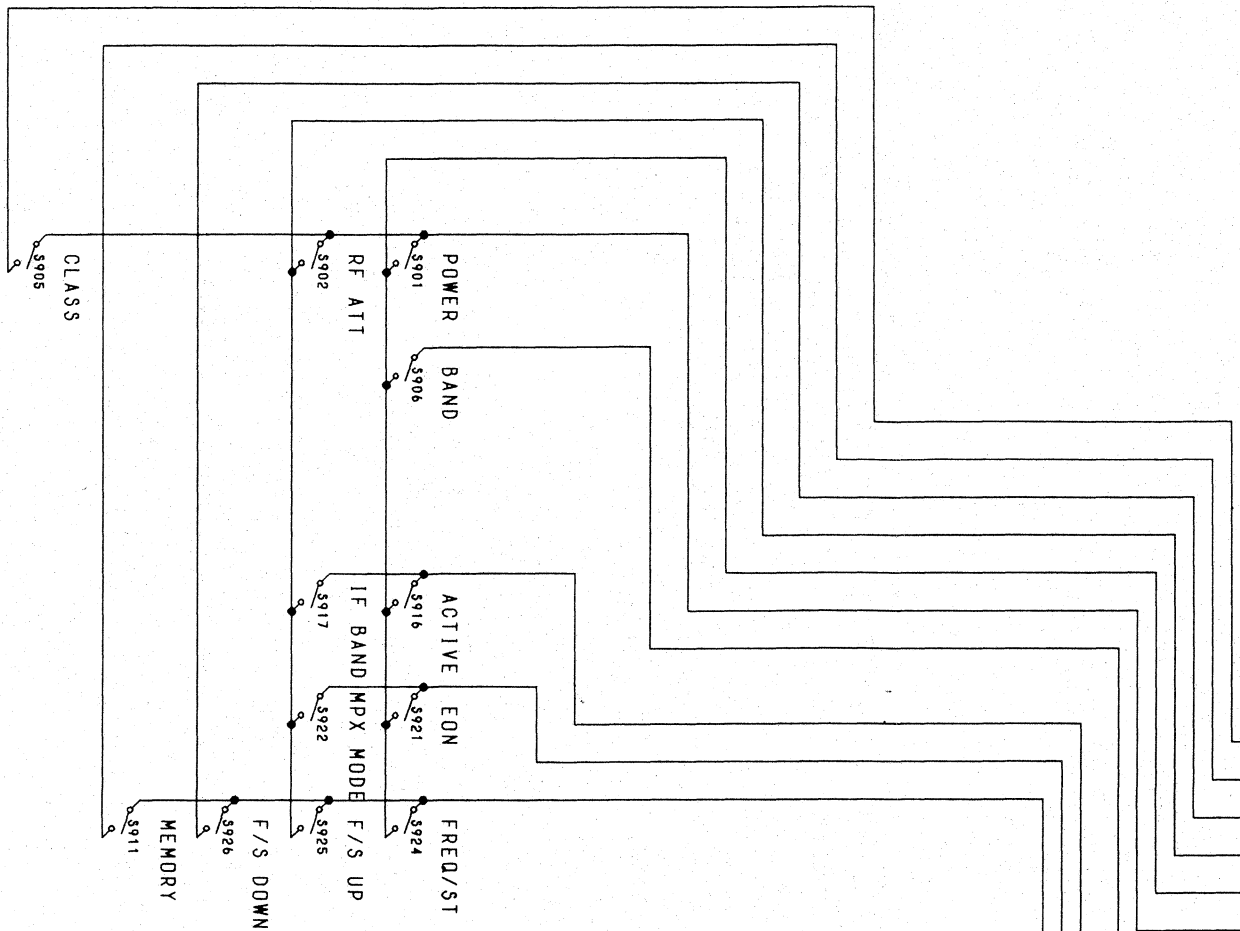
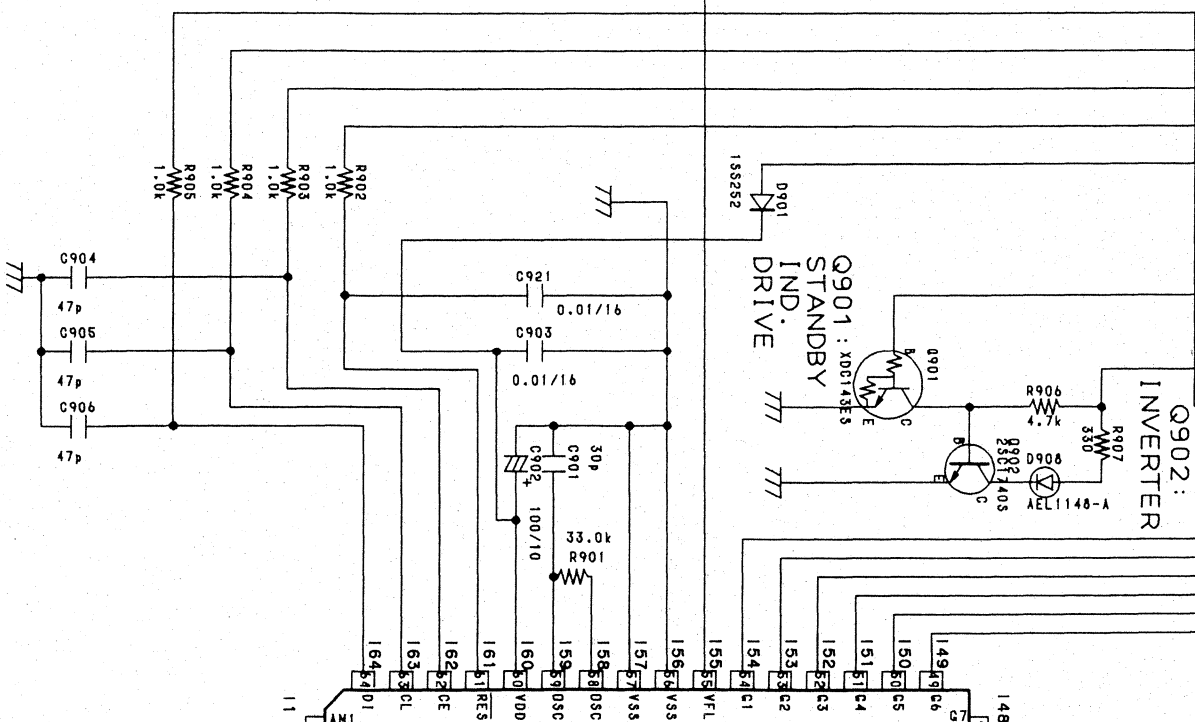
21

C910 100p
C911 100p
C912 100p
C913 100p
C914 100p
C915 100p
C916 100p

148|47|46|45|44|43|42|41|40|39|38
F0 F1 F2 F3 F4 F5 F6 F7 F8 F9
C7 C8 C9 C10 C11
AA8/G12
AA7/G13
AA6/G14
AA5/G15
AA4/G16
AA3

IC901
LC5512E

IC901: FL DRIV



SCH-2

DISPLAY ASSY

1

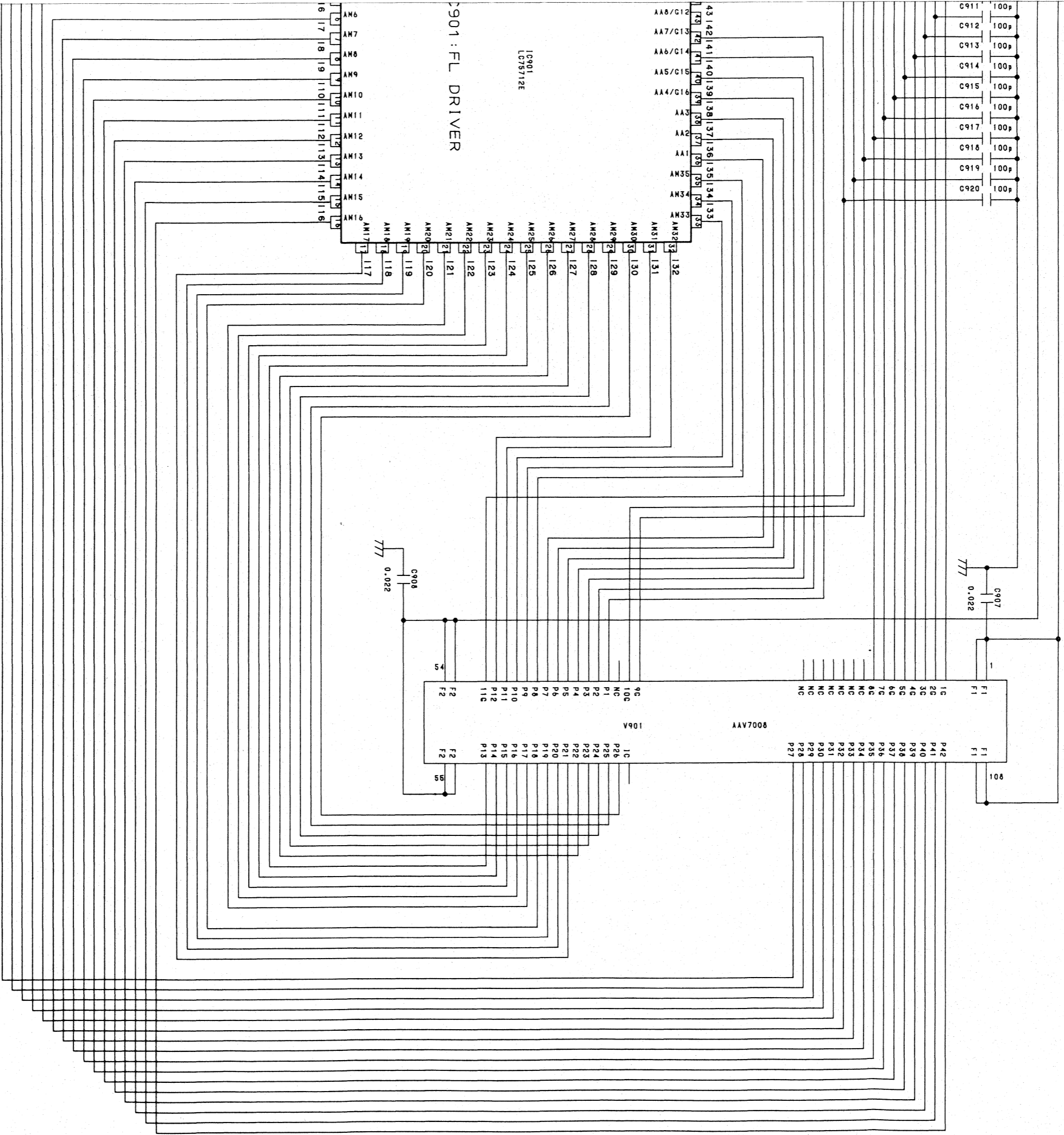
2

3

4

5

SCH-2



Line Voltage Selection

- Line Voltage can be changed by the following modification:
1. Disconnect the AC power cord.
 2. Remove the cover.
 3. Change the position of the jumper-lines ① follows.

Voltage	jumper—line ① position
220V—230V	①
240V	②

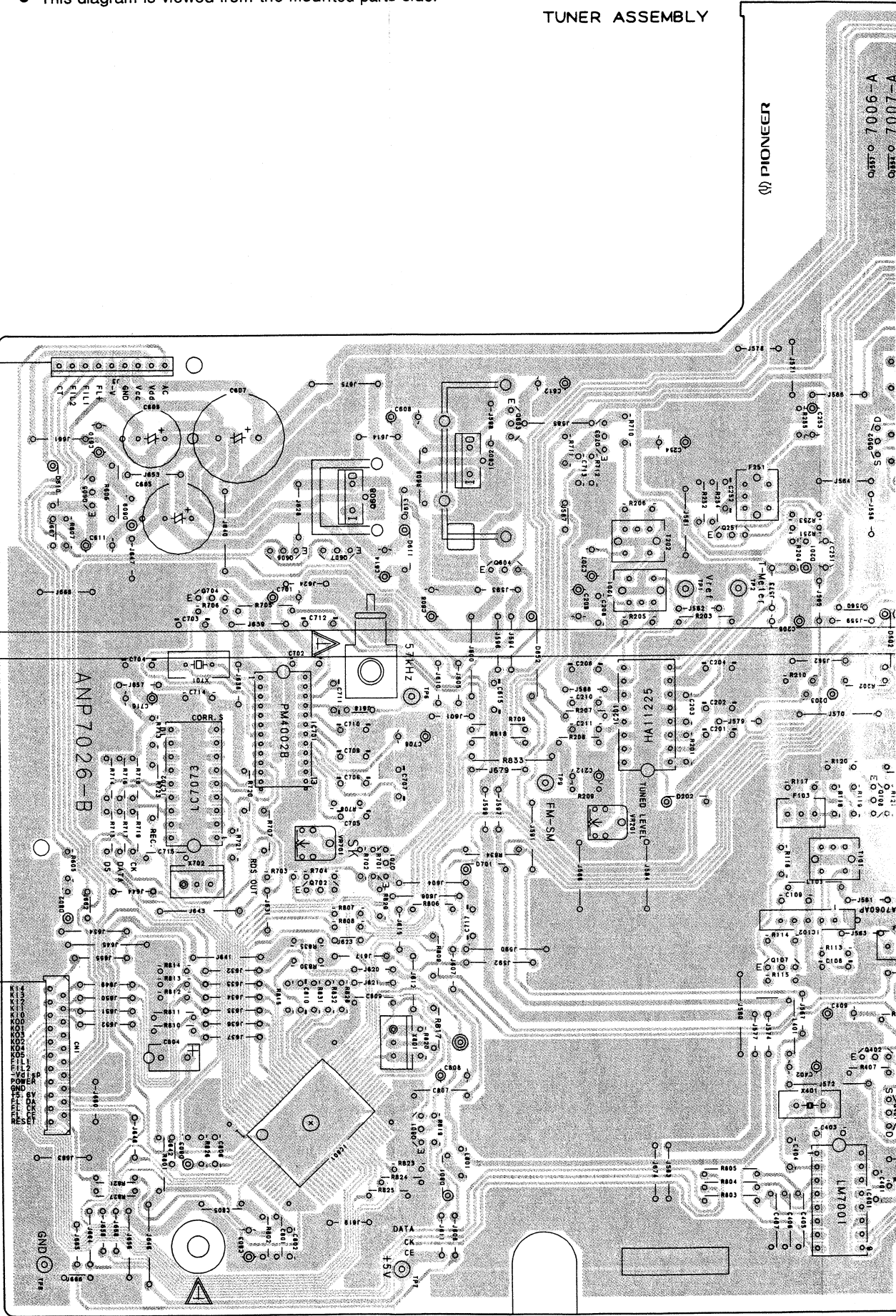
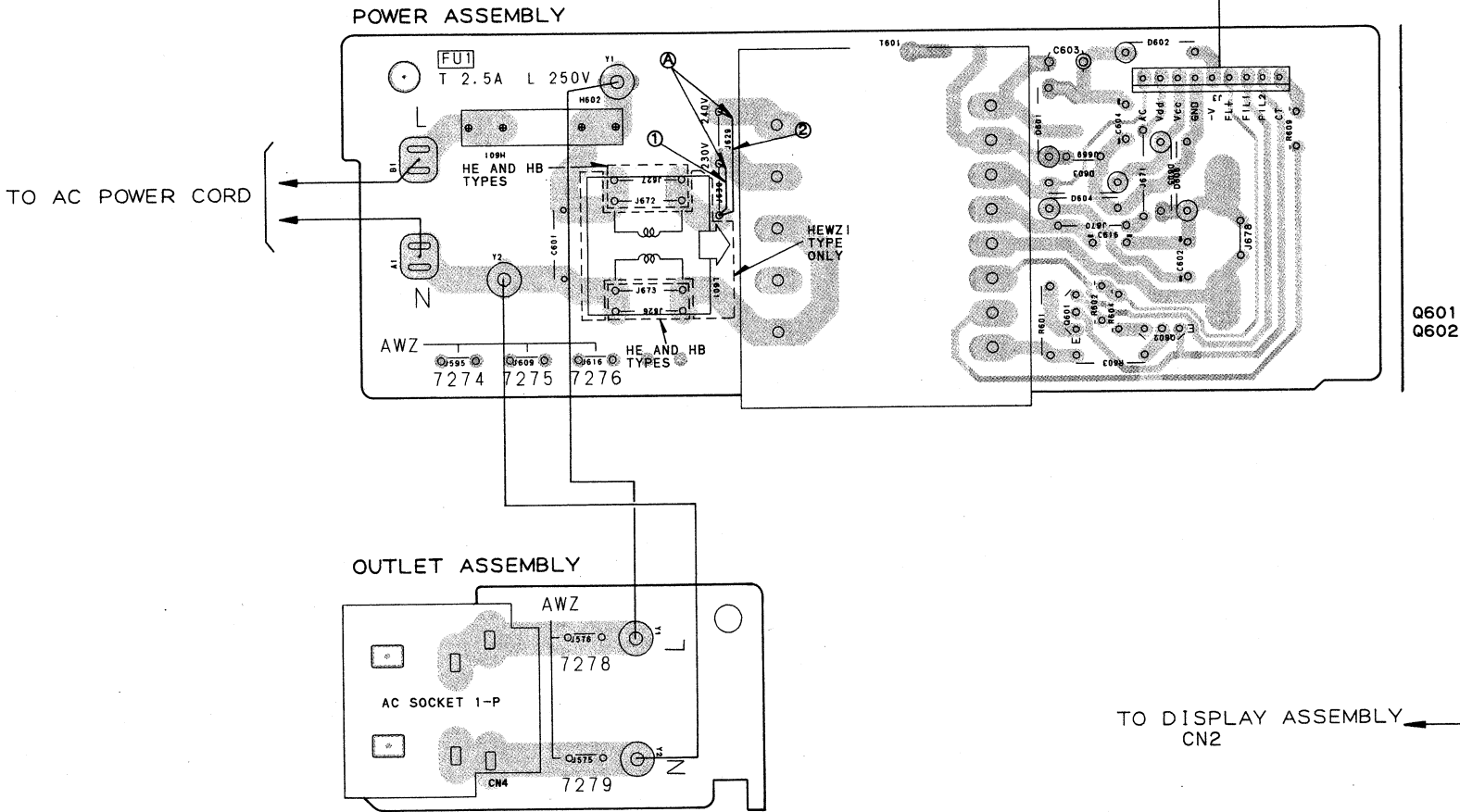
NOTE: When replacing a PCB which has the primary winding circuit of Power-transformer, be sure to compare its circuit with the diagram in Service Manual. jumper-lines on the PCB may have to be removed. Forgetting this check-up will cause a serious damage.

4. Stick a line voltage label on the rear panel.

Part No.	Description
AAX-193	220V label
AAX-192	240V label

● This diagram is viewed from the mounted parts side.

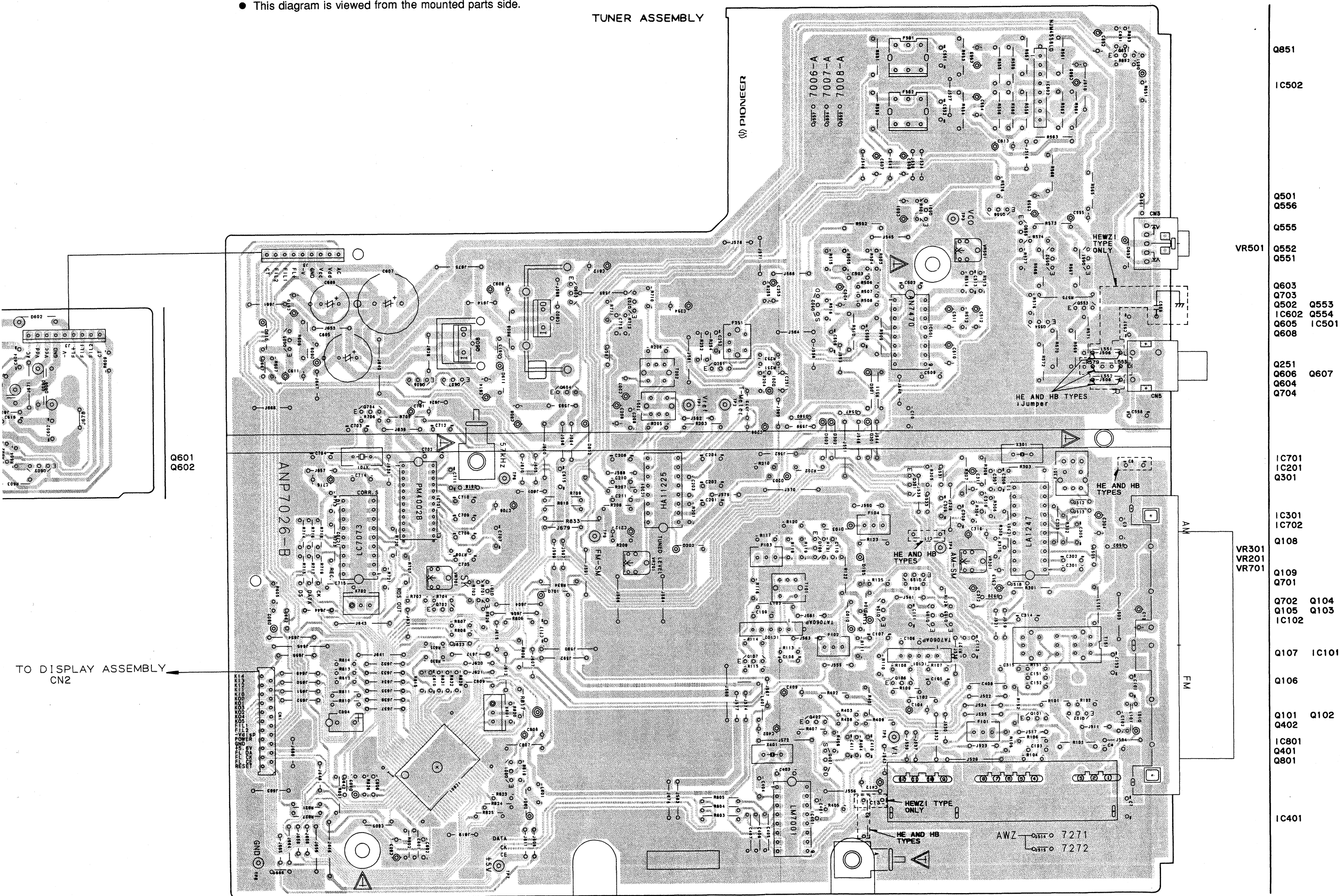
TUNER ASSEMBLY



● This diagram is viewed from the mounted parts side.

TUNER ASSEMBLY

PCB-2



Q851
IC502

Q501
Q556
Q555

VR501
Q552
Q551

Q603
Q703
Q502
Q553
IC602
Q554
Q605
IC501
Q608

Q251
Q606
Q604
Q704
Q607

IC701
IC201
Q301

IC301
IC702
Q108

VR301
VR201
VR701

Q109
Q701
Q702
Q104
Q105
Q103
IC102

Q107
IC101

Q106

Q101
Q402
Q102
IC801
Q401
Q801

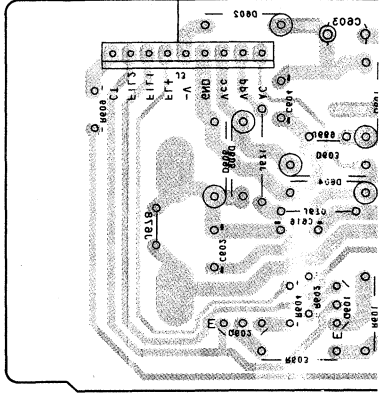
IC401

A

B

C

D

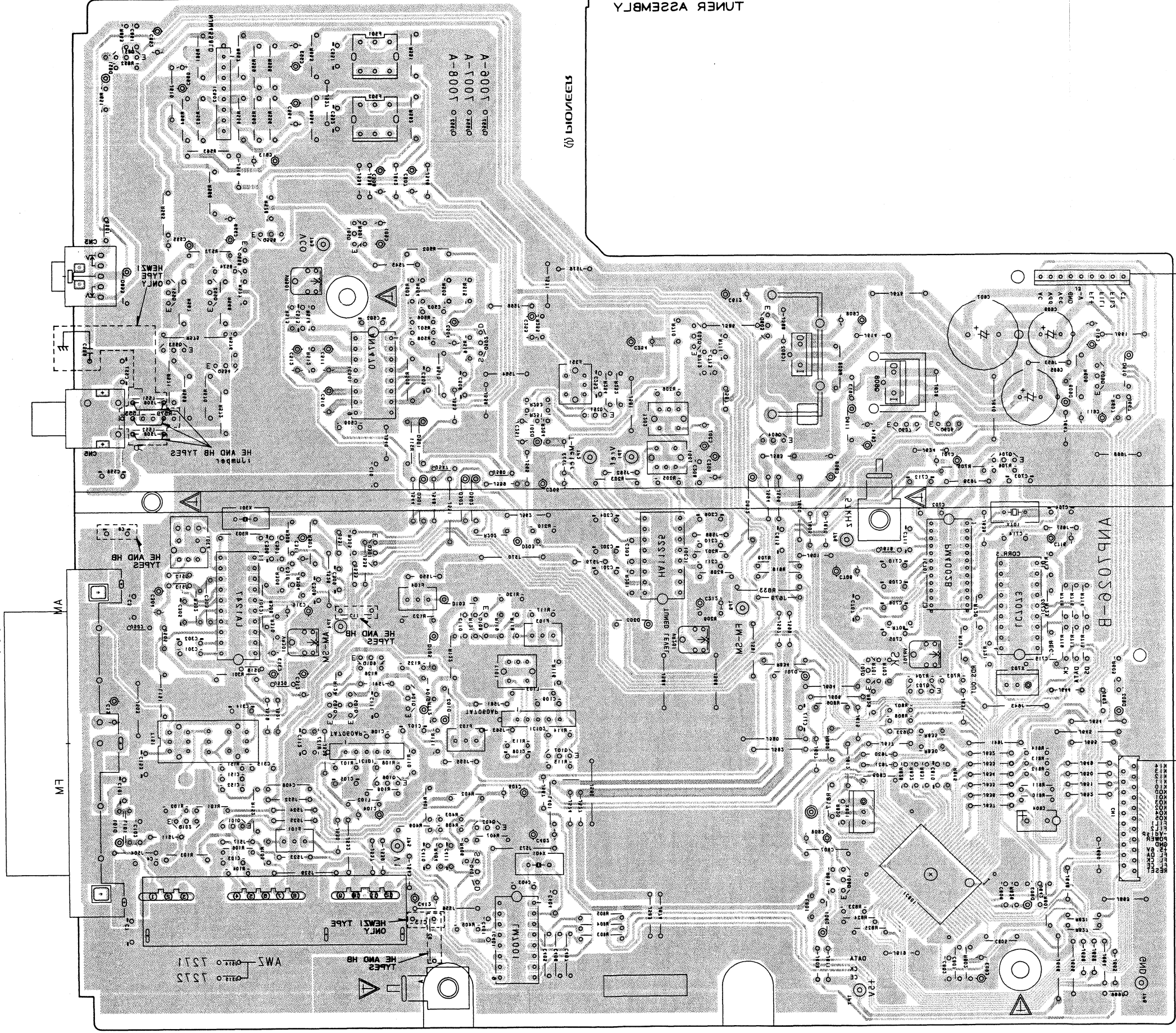


TO DISPLAY ASSEMBLY

0801
0805

● This diagram is viewed from the foil side.

TUNER ASSEMBLY



VR501

0821
IC205

0821
0826

0822
0825

0821
0825

0803
0805
IC205
0824
IC201

0808
0804
0801
0802

0801
IC501

0801
IC501

0801
IC501

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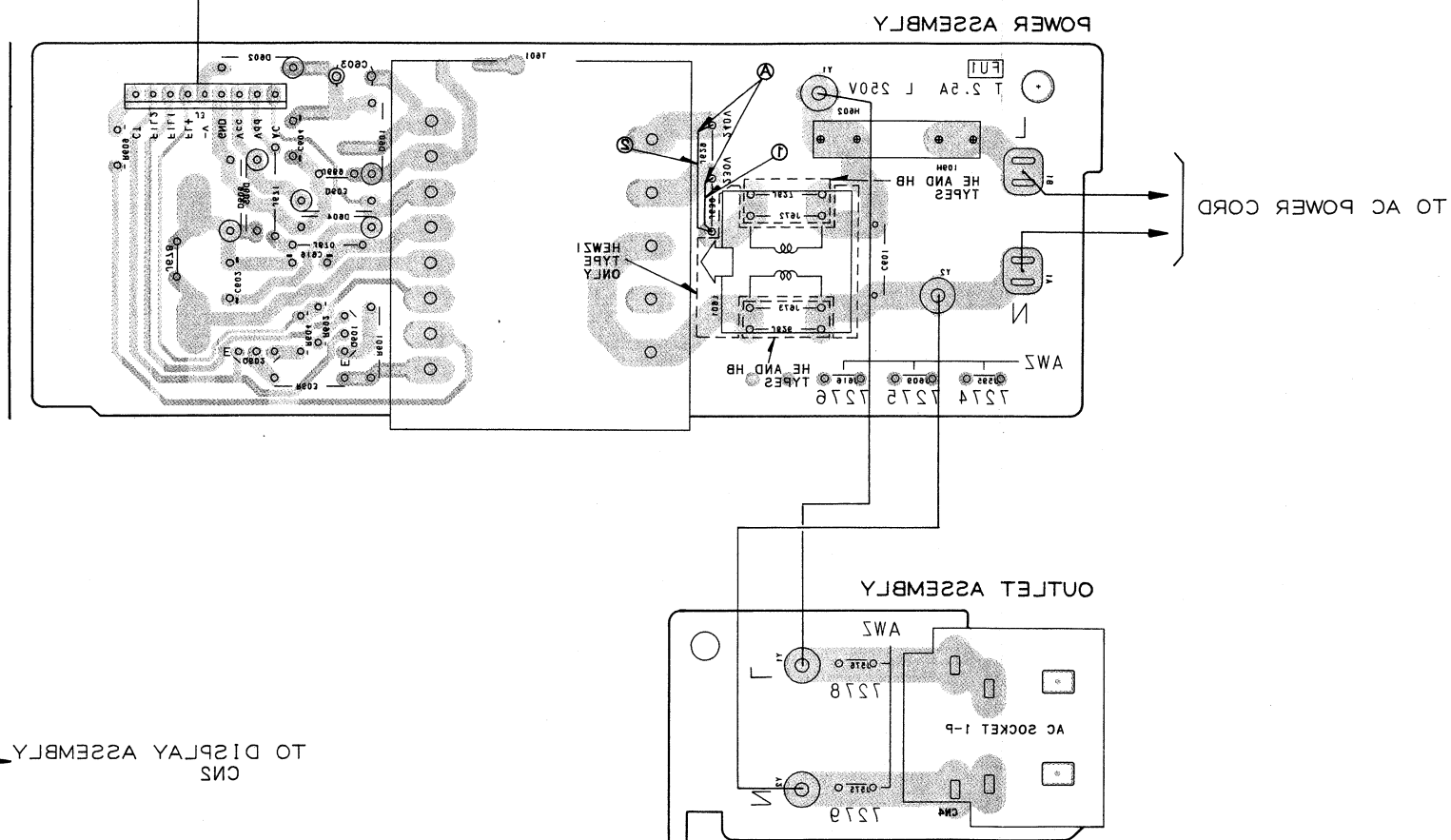
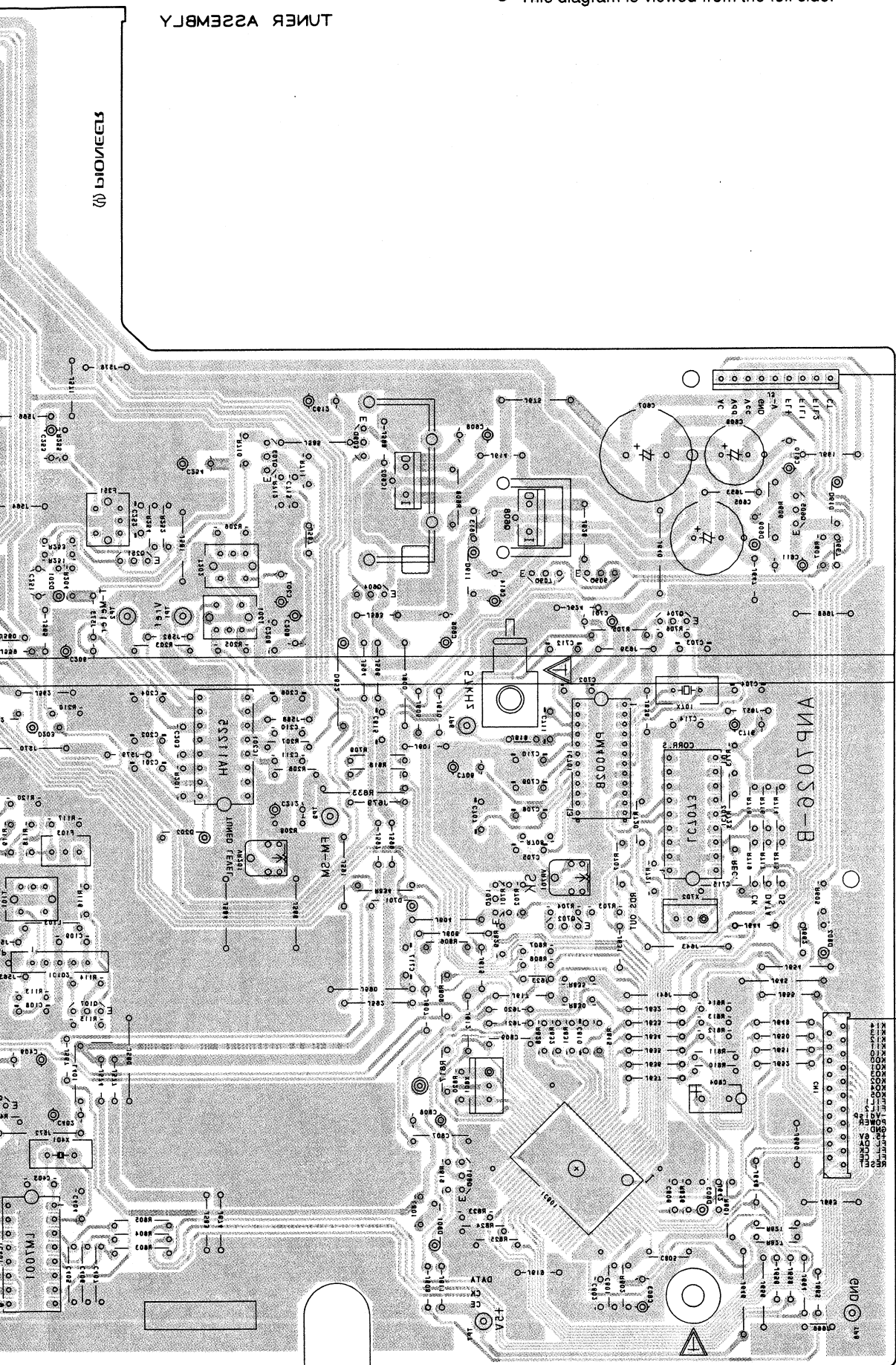
0801
IC501

0801
IC501

PCB-5

F-CARDS

TUNER ASSEMBLY



TUNER ASSY

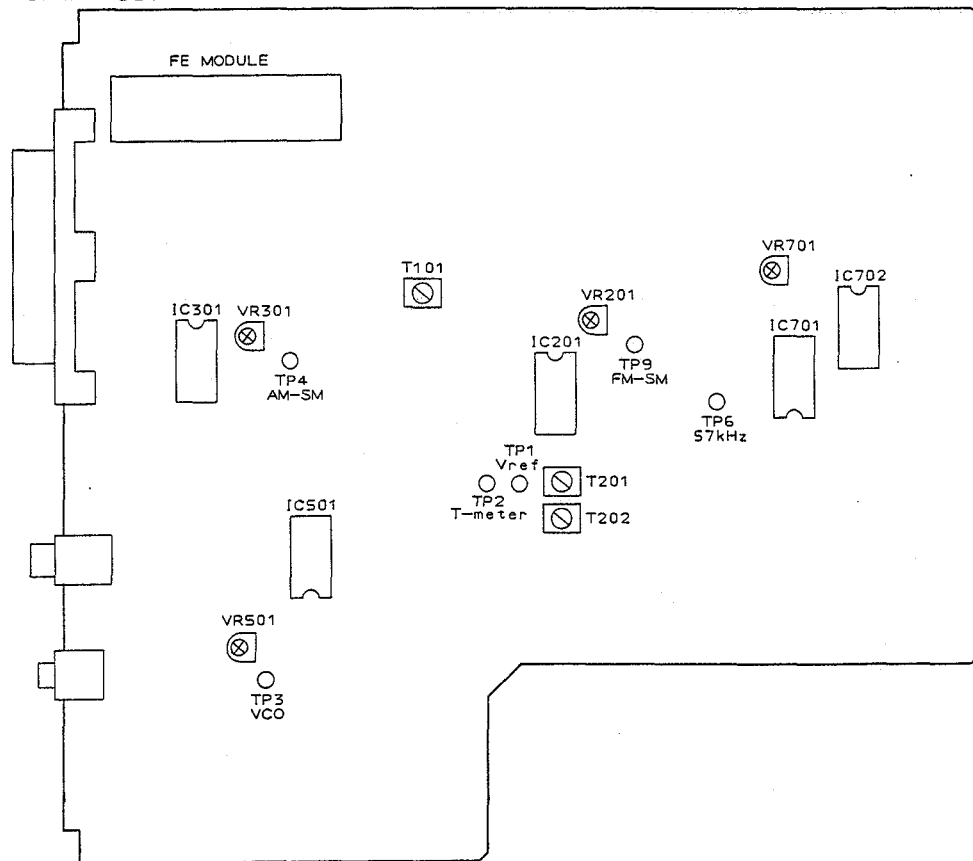


Fig. 1 Adjustment Points

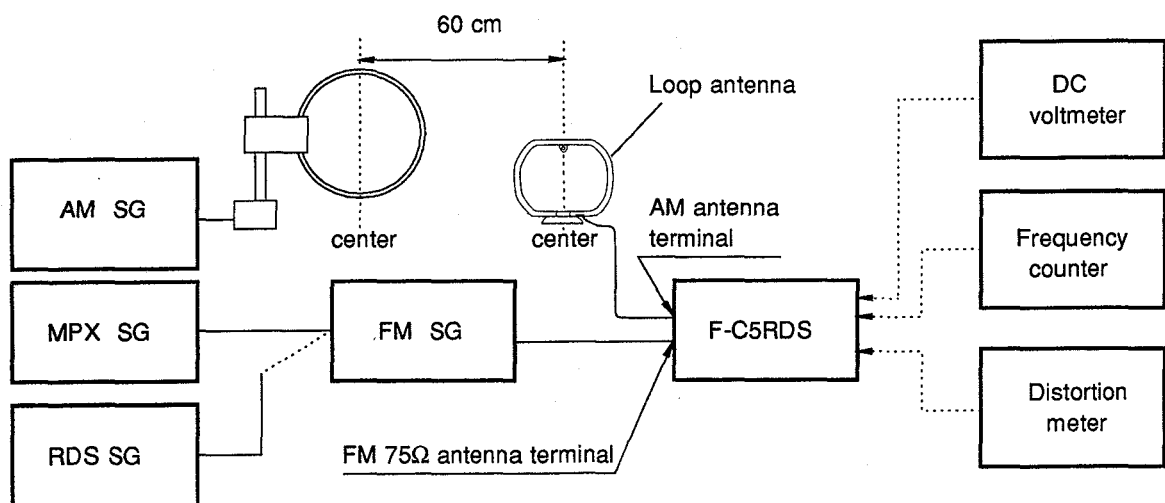


Fig. 2 Connection Diagram

7. FOR HB AND HEWZI TYPES

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

F-C5RDS/HB, HEWZI and F-C5RDS/HE have the same construction except for the following:

Mark	Symbol & Description	Part No.			Remarks
		F-C5RDS/HE	F-C5RDS/HB	F-C5RDS/HEWZI	
Δ	TUNER assembly	AWE7007	AWE7008	AWE7006	
	TUNER assembly	AWZ7272	AWZ7272	AWZ7271	
	POWER assembly	AWZ7275	AWZ7276	AWZ7274	
	OUTLET assembly	AWZ7279	AWZ7278	AWZ7279	
	AC power cord	ADG1049	ADG1103	ADG1049	
	Rear panel	ANC7095	ANC7096	ANC7094	
	Ferrite core	.....	.....	ATX7001	*
	Screw	.....	.....	ABA1047	*
	Operating instructions (English/German/French/Italian/ Swedish/Dutch/Spanish/Portuguese)	ARE7015	.....	.....
	Operating instructions (English)	.....	ARB7014	.....
	Operating instructions (German/Italian)	.....	.....	ARC7022	
	FM antenna	ADH1005	ADH1005	ADH1002	
	Plate (GND)	.....	.....	ANK1120	*

* : Refer to page4.

TUNER ASSEMBLY

AWZ7271 and AWZ7272 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		AWZ7272	AWZ7271	
	R559,R560	RDR1/4PM223J	RDR1/4PM472J	
	R567,R568	RDR1/4PM122J	RDR1/4PM271J	
	R579	.....	RD1/8PM010J	
	C6	CKPUYB101K50	.....
	C7	CKDYX223M25	CKDYX103M25	
	C8	CKDYX223M25	.....
	C10	CKPUYB102K50	CKDYB102K50	
	C11	CKPUYY103M16	.....
	C12	CKDYB102K50	CKDYB272K50	
	C13	.....	CKPUYB101K50	
	C557,C558	CKDYB471K50	CKDYB103K50	
	C559	.....	CKDYB102K50	
	L551,L552	.....	LAU2R2K	
	L553	.....	LAU010K	
	Antenna terminal 4—P	AKA1010	.....
	Antenna terminal 2—P	.....	AKA1012	

POWER ASSEMBLY

AWZ7276, AWZ7274 and AWZ7275 have the same construction except for the following:

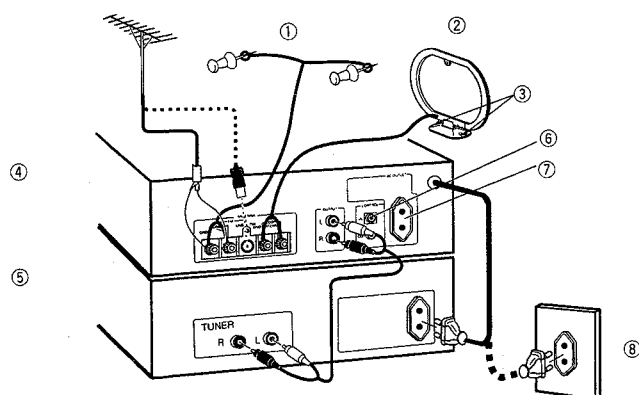
Mark	Symbol & Description	Part No.			Remarks
		AWZ7275	AWZ7276	AWZ7274	
△	L601	.....	.....	ATF1135	

OUTLET ASSEMBLY

AWZ7278 and AWZ7279 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		AWZ7279	AWZ7278	
△	AC socket 1-P	AKP1034	AKP1035	

8. CONNECTIONS



① FM T-type antenna (accessory)

- Use thumb tacks or push pins to fasten antenna wires to a wall.
- Fasten the antenna wires on a wall, not allowing the wires to droop or bunch up.

② AM loop antenna (accessory)

- ③ Use these holes if necessary to mount antenna on a post or wall.

④ F-C5RDS

⑤ Stereo amplifier

⑥ Control jack

⑦ AC outlet

1. Connecting the accessory FM T-type antenna and AM loop antenna.



Twist the vinyl covering on the end of the wire to remove the covering.



Unscrew the connector and twist the antenna wire around the shaft.



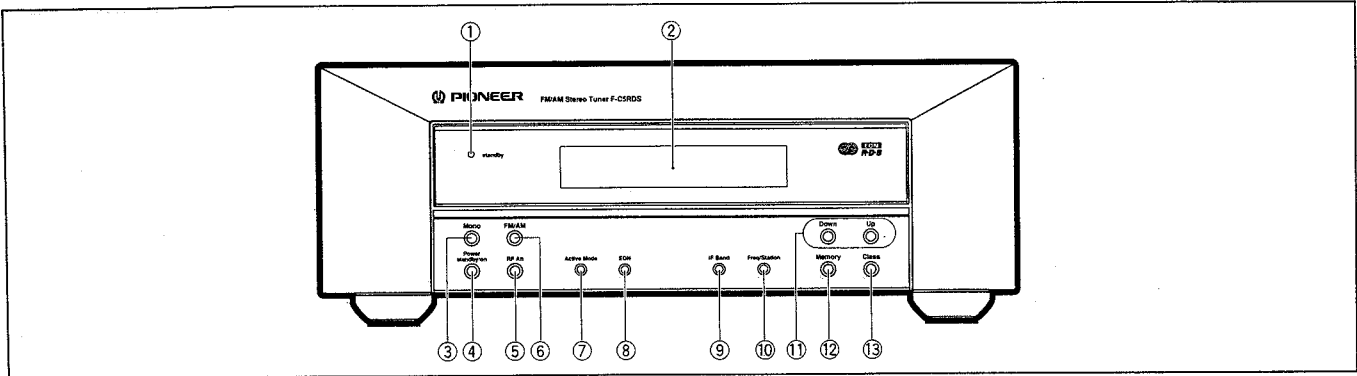
Tighten securely.

- This antenna provides a simple means of receiving FM broadcasts. For better reception, however, you may wish to use a special outdoor FM antenna.
- Do not mount the AM loop antenna on the metal case of this or other components, or near a CD player, personal computer, or television.

2. Use the accessory audio cables to connect the color-coded connectors.

(connect Red to the Right channel and White to the Left channel).

9. PANEL FACILITIES



① **Standby indicator**

Goes out when power is turned on; lights when power is set to standby.

② **Display section**

③ **Mono button**

④ **Power standby/on switch**

This is the switch for electric power.

on: When set to the on position, power is supplied and the unit becomes operational.

standby: When set to the standby position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness. When the Standby indicator lights, the unit is in STANDBY.

⑤ **RF Att button**

Press this RF attenuator button if the excessive strength of FM signals results in distortion. The RF ATT indicator will light in the display section.

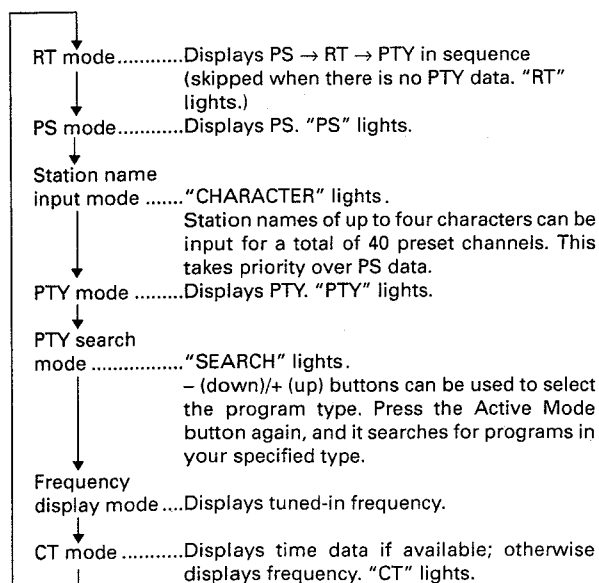
- This function does not operate during AM broadcasts.

⑥ **FM/AM button**

⑦ **Active Mode button**

Each time you press this button, the mode changes as follows:

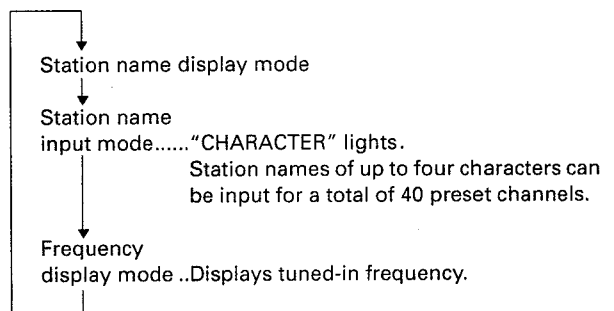
FM:



NOTE:

The station name input mode and PTY search mode are skipped when the EON function is used for interrupt waiting.

AM:



⑧ **EON button**

If receiving a station broadcasting EON information, the radio can automatically keep track of broadcast information from other network stations. If you specify traffic information (TA) or program type (PTY) beforehand, the frequency will change automatically when the specified broadcast begins. The display's EON indicator lights when receiving a station broadcasting EON information.

⑨ **IF Band button**

Each time this button is pressed, the bandwidth of the IF circuit switches between "normal" and "narrow" for the FM band. The NARROW indicator lights up. When not lit, normal filter bandwidth is selected. Set to NARROW in case of interference from other stations. This button does not affect AM reception.

NOTE:

This button's status is preset for each station in station memory.

⑩ **Freq/Station button**

⑪ **Tuning Up+ Down- button**

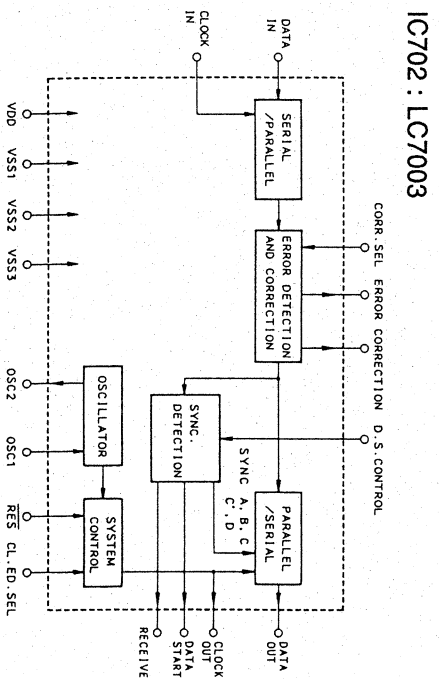
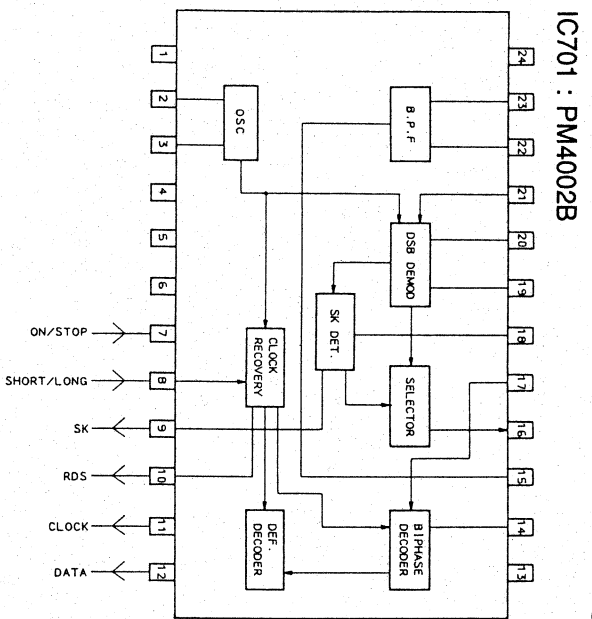
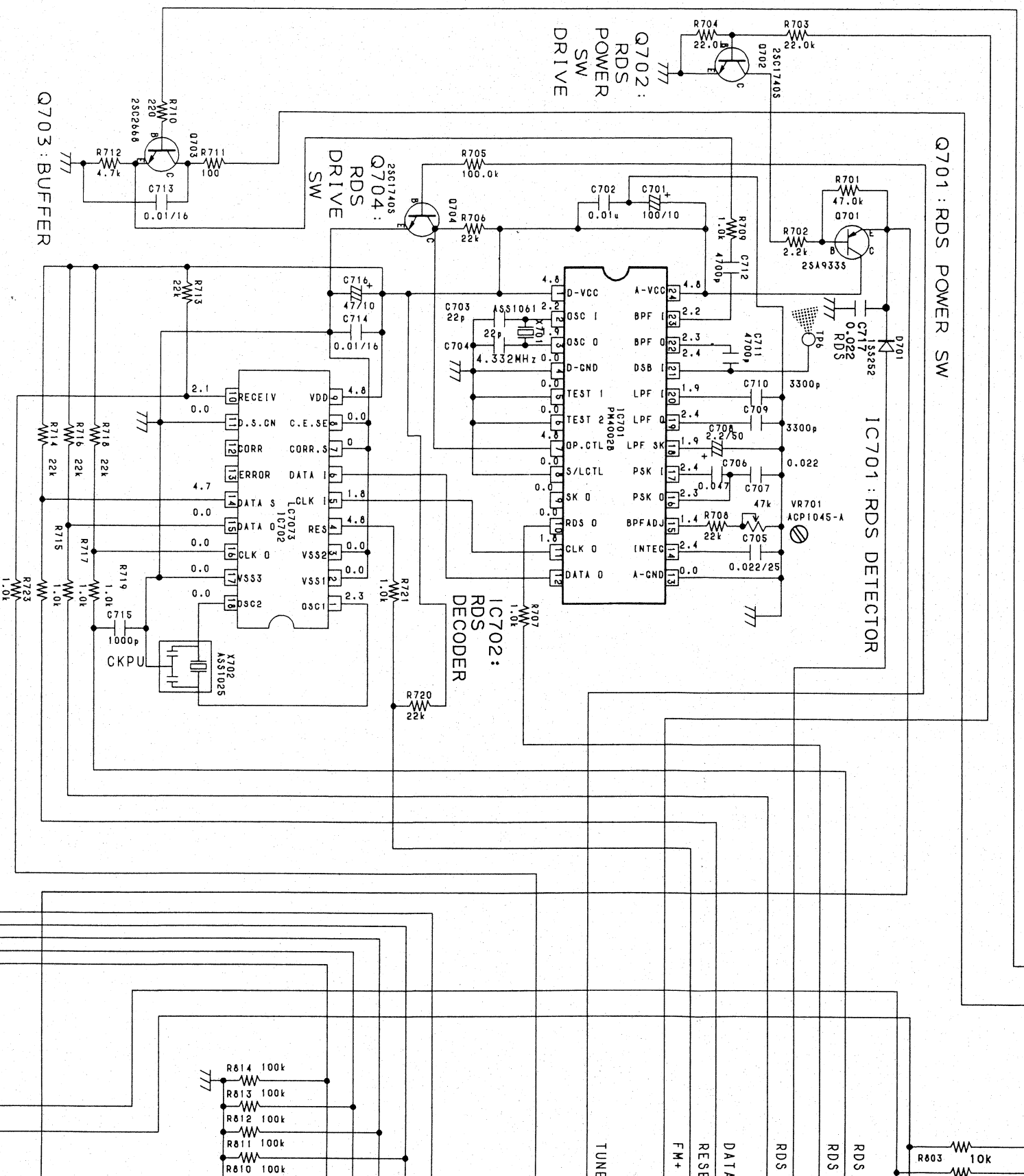
Use to tune broadcast stations.

⑫ **Memory button**

⑬ **Class button**

Use to switch between preset memory classes 1 to 4. In each class, 10 stations can be memorized using the "+" / "-" buttons, enabling a total of 40 stations to be memorized.

TUNER ASSEMBLY (2/2) (AWZ7272:HE AND HB TYPES)
(AWZ7271:HEWZ1 TYPE)



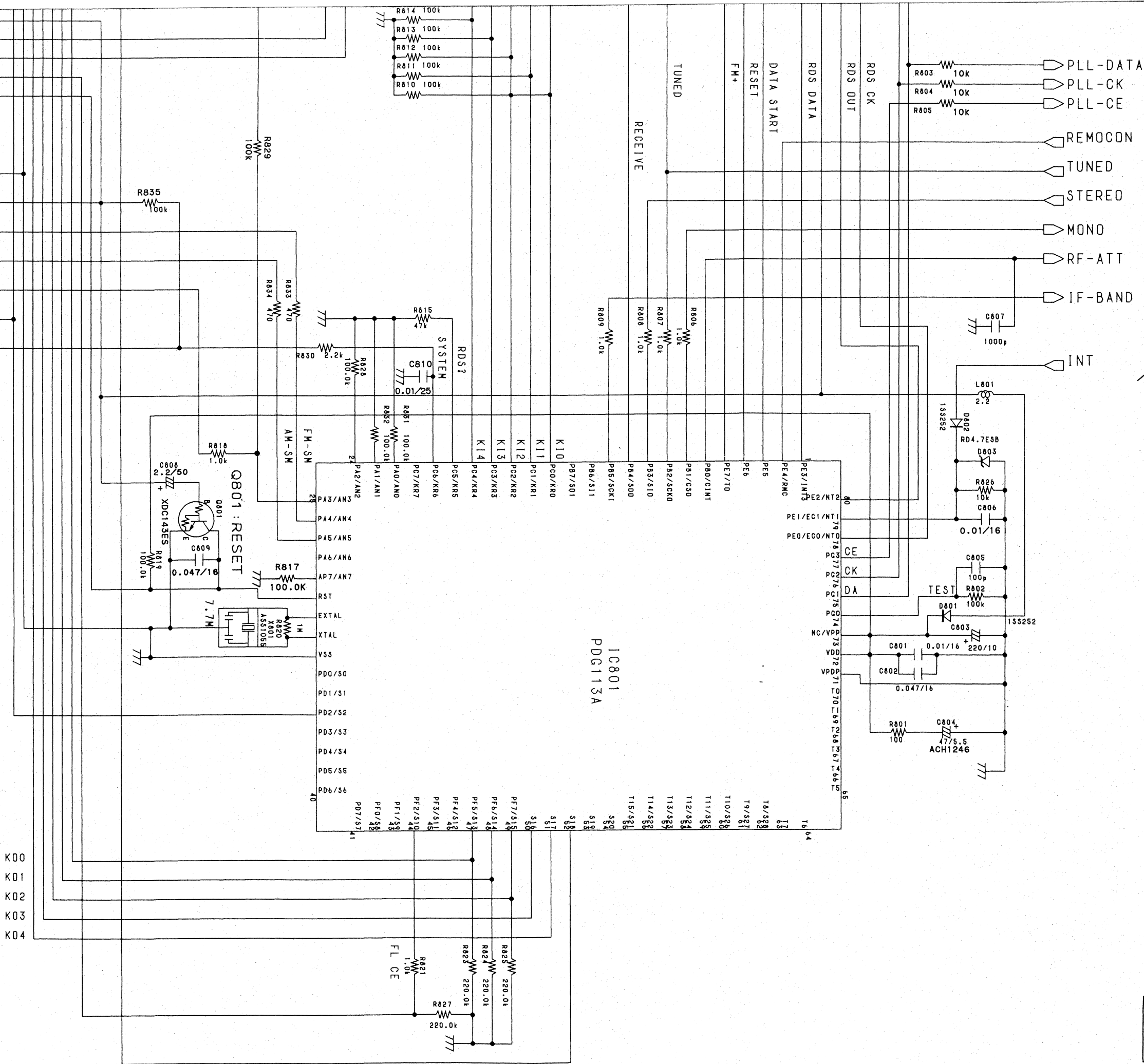
SCH-4

TUNER ASSY (2/2)

TO TUNER ASSEMBLY (1/2) (→SCH-3)

TO DISPLAY ASSEMBLY CN2 (→SCH-2)

K14
K13
K12
K11
K10
K00
K01
K02
K03
K04
K05
FIL1
FIL2
VDISP
POWER
GND
+5.6V
FL CK
FL DATA
FL CE
RESET



SCH-2) +5.6V FL CK FL DATA FL CE RESET TO TUNER ASSEMBLY (1/2) (→SCH-3)

5. PCB PARTS LIST

NOTES:

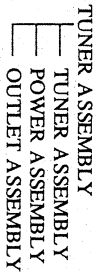
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω → 56 × 10¹ → 561 RD1/8PM 561J
47kΩ → 47 × 10³ → 473 RD1/4PS 473J
0.5Ω → 0R5 RN2H 0R5K
1Ω → 010 RS1P 0110K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62kΩ → 562 × 10¹ → 5621 RN1/4PC 5621F

LIST OF ASSEMBLIES



DISPLAY ASSEMBLY

TUNER ASSEMBLY
SEMICONDUCTORS

IC501	AN7470P
IC201	HA11225
IC301	LA1247
IC702	LC7073
IC401	LM7001J
IC502	NJM4581D
IC602	NJM7812AS
IC801	PDG113A
IC701	PM4002B
IC101,IC102	TA7060AP

Q101,Q603	2SA1529
Q555,Q701	2SA933S
Q605	2SB560
Q102,Q109,Q251,Q501	2SC1740S
Q551-Q554,Q556,Q702,Q704	2SC1740S

Q851	2SC1740S
Q402	2SC1740SLN
Q106-Q108,Q703	2SC2668
Q608	2SD880
Q401,Q502	2SK246

Q301	XDA124ES
Q103,Q105,Q606	XDA143ES
Q104,Q607	XDC124ES
Q604,Q801	XDC143ES
D201-D203,D301,D302	1SS252

D501,D502,D701,D801,D802	1SS252
D851	1SS252
D102-D105	1SS85
D101	1SV156
D852	HSS104-02

COILS AND FILTERS

T101	ATE-063
T201	ATE1008
T202	ATE1009
F103,F104	ATF-107
F101	ATF-119

F102	ATF1024
F301	ATF1042
F501,F502	ATF1143
F251	ATF1152
L101-L103,L401,L801	LAU2R2K

L151	LAU470K
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CAPACITORS

C703,C704	ACH1246
C151,C403,C404	CCDCH220J50
C315,C405-C407	CCPUCHI50J50
C412	CCPUSL470J50
C251	CEANL010M50

C205	CEANPAR7M50
C312	CEAS010M50
C606,C701	CEAS100M50
C501	CEAS101M10

C611	CEAS101M35
C605	CEAS102M25
C511	CEAS1R5M50
C803	CEAS221M10
C708,C808	CEAS2R2M50

C104,C209,C304,C311,C402	CEAS330M16
C409	CEAS330M16
C609	CEAS331M50
C512	CEAS3R3M50
C504,C716,C852	CEAS470M10

Mark No.	Description	Parts No.	Mark	Mark
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C207	CEAS470M16
C608,C614	CEAS470M25
C610	CEAS470M35
C212,C253,C313,C316	CEAS4R7M50
C510	CEASR22M50

C254	CEEA101M16
C607	CEEA332M35
C553,C554	CEEA2R2M50
C560,C612,C613	CEEA470M25
C507,C508,C555,C556	CEEA4R7M50

C410	CFTXA22450
C12,C308	CKDYB102K50
C252	CKDYB12K50
C709,C710	CKDYB332K50
C557,C558	CKDYB471K50

C711,C712	CKDYB472K50
C101,C102,C107,C305,C411	CKDYX103M25
C810	CKDYX103M25
C152,C615	CKDYX104M25
C111,C112,C153,C201,C202	CKDYX223M25

C204,C206,C306,C314,C7	CKDYX223M25
C705,C707,C717,C8	CKDYX223M25
C105,C108,C210,C302,C309,C502	CKDYX473M25
C706	CKDYX473M25
C6,C805,C851	CKPUYB101K50

C10,C3,C301,C307,C4	CKPUYB102K50
C715,C807	CKPUYB102K50
C503	CKPUYB121K50
C203	CKPUYB221K50
C802,C809	CKPUYF473Z16

C103,C106,C109,C11,C110	CKPUYY103M16
C208,C211,C303,C310,C401	CKPUYY103M16
C408,C509,C702,C713,C714	CKPUYY103M16
C801,C806	CKPUYY103M16
C551,C552	QMAA222J50

C505,C506	QOMXA1021I00
C513	QOP4471J100

RESISTORS

R606	RD1/2PM471J
R103,R608	RD1/2PM821J
R307	RD1/4PM151J
R301	RD1/4PM331J
R571,R572	RDRI/4PM101J
R555,R556	RDRI/4PM104J
R567,R568	RDRI/4PM122J
R561,R562	RDRI/4PM222J
R559,R560	RDRI/4PM223J
R551,R552	RDRI/4PM242J
R565,R566	RDRI/4PM271J
R557,R558	RDRI/4PM472J
R533,R554,R569,R570	RDRI/4PM562J
R502,R509,R510	RDRI/4PM563J
VR501	ACP1042

VR301	ACP1043
VR201	ACP1044
VR701	ACP1045

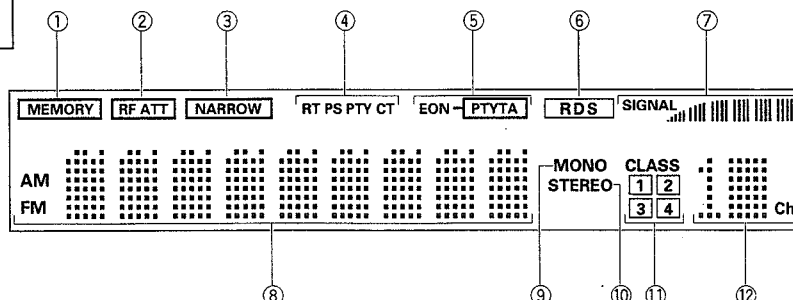
Other Resistors

RD1/8PM	□□□J
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OTHERS

SCREW	ABA-298
ANTENNA TERMINAL 4-P	AKA1010
CNS	AKB1146
PIN JACK(2P)	

Display Section
Section d'affichage
Display
Quadrante delle indicazioni



- ① **MEMORY indicator**
- ② **RF ATT indicator**
Stays lit while RF Att button is on.
- ③ **NARROW indicator**
Stays lit while IF Band button is set to NARROW. When not lit, stays NORMAL.
- ④ **RT, PS, PTY, CT indicator**
One of these lights to indicate the selected display mode (selected by the Active Mode button). Time is displayed when the CT data is received. It switches to frequency mode display if not lit.
- ⑤ **EON - PTY TA indicator**
When a station broadcasting EON information is received, EON — lights. After specifying TA or PTY, interrupt waiting begins and the TA or PTY indicator lights. When specified TA or PTY is received, TA or PTY flashes.
- ⑥ **RDS indicator**
Lights when an RDS broadcast is received.
- ⑦ **SIGNAL indicator**
- ⑧ **Frequency, character, clock time indicator**
CT (Clock Time) data, band RDS data and frequency data are displayed.
- ⑨ **MONO indicator**
Stays lit while Mono button is set to MONO.
- ⑩ **STEREO indicator**
Lights up when a stereo broadcast is received (the indicator does not light when the Mono button is set to MONO).
- ⑪ **CLASS 1, 2, 3, 4 indicator**
Shows the class selected by the Class button. The current CLASS is displayed.
- ⑫ **Station indicator**
When Freq/Station button is pressed, it will show the corresponding channel number.

10. SPECIFICATIONS

FM Tuner Section

Frequency range	87.5 MHz to 108 MHz
Usable Sensitivity (IHF)	12.7 dBf (1.2 μ V/75 Ω)
50 dB Quieting Sensitivity	Mono; 18 dBf (2.2 μ V/75 Ω)
.....	Stereo; 38.3 dBf (22.6 μ V/75 Ω)
Sensitivity (DIN)	Mono; 1.0 μ V/75 Ω
.....	Stereo; 35 μ V/75 Ω
Signal-to-Noise Ratio	Mono; 78 dB (at 85 dBf)
.....	Stereo; 74 dB (at 85 dBf)
Signal-to-Noise Ratio (DIN)	Mono; 62 dB
.....	Stereo; 60 dB
Distortion	0.3 % (1 kHz)
Alternate Channel Selectivity	65 dB (300 kHz)
Stereo Separation	40 dB (1 kHz)
Frequency Response	30 Hz to 15 kHz \pm 1 dB
Image Response Ratio	80 dB
IF Response Ratio	90 dB
Antenna Input	75 Ω unbalanced
Output	650 mV (100 % MOD.)

MW (AM) Tuner Section

Frequency range	531 kHz to 1,602 kHz
Sensitivity (IHF, Loop antenna)	350 μ V/m
Selectivity	30 dB
Signal-to Noise Ratio	50 dB
Antenna	Loop Antenna
Output	150 mV (30 % MOD.)

Miscellaneous

Power Requirements	AC220—230 Volts \sim , 50/60 Hz
Power Consumption	16 W
Dimensions	260 (W) x 95.5 (H) x 336 (D) mm
Weight (without package)	2.4 kg

Furnished Parts

FM T-type Antenna	1
AM Loop Antenna	1
Audio connection cable with Pin Plugs	1
Operating Instructions	1
Control cable	1

NOTE:

Specifications and design subject to possible modification without notice, due to improvements.